

Nevada Smoke Management Program 2013

Purpose

The public policy of the State of Nevada is to achieve and maintain levels of air quality which will protect human health and safety, prevent injury to plant and animal life, prevent damage to property, and preserve visibility and the scenic and esthetic values of the state. The purpose of the Nevada Smoke Management Program (SMP) is to coordinate and facilitate the statewide management of prescribed outdoor burning on lands in the state of Nevada. This program is designed to meet the requirements of NRS445B.100 through 445B.845, inclusive which deal with air pollution, and the requirements of the EPA Interim Air Quality Policy on Wildland and Prescribed Fires (May 1998). This program in no way supersedes the authority of local governments to regulate and control smoke and air pollution under NRS244.361 and NRS268.410 or the authority of the state forester to regulate controlled fires under NRS527.122 through 527.128.

Cooperation

An ongoing cooperative effort by all organizations involved in the use of prescribed fire for accepted range, agricultural and forestry practices is essential to the success of this plan.

Goals

- To assist in meeting visibility goals required in the Nevada Regional Haze State Implementation Plan.
- Acknowledge the role of fire in Nevada and allow the use of fire under controlled conditions to maintain healthy ecosystems while meeting the requirements of the Clean Air Act
- To encourage the development of better smoke management models and techniques
- To provide for a voluntary approach to the implementation of a statewide smoke management program
- Facilitate the enjoyment of the natural attractions of the state
- Provide a burning program for the people of this state
- Protect human health and safety from the effects of outdoor burning
- Foster and encourage the development of reasonable alternative methods for disposing of or reducing the amount of organic refuse on lands in Nevada
- To address interstate smoke transport issues through enhanced communication and the development of interstate/interagency agreements

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- Provide the opportunity for forest, rangeland, and crop burning while minimizing air quality impacts

Smoke Management Responsibilities

Each land manager involved in the use of prescribed fire is responsible for proper smoke management for the prescribed fires it conducts and shall identify and implement appropriate smoke management techniques to minimize the amount and/or impact of smoke produced and to avoid exceedances of the Nevada and National Ambient Air Quality Standards.

The Nevada Division of Environmental Protection (the Division) will work with the land managers and air agencies in other states to ensure that interstate transport of air pollutants does not unfairly restrict the ability of Nevada's land managers to implement prescribed fire programs.

Definitions

Agricultural Burning includes crop residue burning, ditch and fence line burning, rangeland burning, and burning for land clearance and general upkeep, but does not include burning of garbage and man-made materials as a form of waste disposal.

Class I Area includes all international parks, national wilderness areas which exceed 5,000 acres in size, national memorial parks which exceed 5,000 acres in size, and national parks which exceed 6,000 acres in size and which are in existence on August 7, 1977 (CAA Section 162(a)). The only Class I area designated in Nevada is the Jarbidge Wilderness.

Land manager includes any federal, state, local or private entity that administers, directs, oversees or controls the use of public or private land, including the application of fire to the land.

National Ambient Air Quality Standards (NAAQS) refers to standards for maximum acceptable concentration of pollutants in the ambient air to protect public health with an adequate margin of safety, and to protect public welfare from any known or anticipated adverse effects of such pollutants (e.g., visibility impairment, soiling, materials damage, etc.) in the ambient air.

Open Burn Authorization is a permit issued by the Nevada Division of Environmental Protection

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for all management ignited prescribed fires which emit greater than 1.0 ton of PM10, and for any fire training being conducted regardless of size. This permit was formerly called an Open Burn Variance.

PM10 refers to particulate matter 10 microns in diameter or smaller.

PM2.5 refers to particulate matter 2.5 microns in diameter or smaller.

Prescribed fire includes any fire purposefully ignited by management actions to meet specific land management objectives. An approved Open Burn Authorization must exist prior to ignition. The definition does not include fire training, public open burning or any other type of burning that is not specifically listed in the applicability section of this document.

Public open burning is the burning of vegetative yard waste conducted by single family residences within the jurisdiction of and under a permit obtained by the local fire protection agency. The vegetative yard waste must be generated only from the residence conducting the burn.

Smoke management includes but is not limited to techniques to reduce emissions and smoke impacts, the identification and avoidance of smoke sensitive areas, the monitoring and evaluation of the smoke impacts of each burn, and coordination among land management agencies to minimize cumulative impacts.

Smoke sensitive areas include but are not limited to Class I areas as well as other designated scenic and/or important views especially during times of significant visitor use, urban and rural population centers, homes, schools, hospitals, nursing homes, transportation facilities such as roads and airports, recreational areas, and other locations that may be sensitive to smoke impacts for health, safety, and/or aesthetic reasons.

Suppression action includes any activity in which the responsible fire control agency personnel are actively trying to confine, contain or control a fire. Use of natural fire barriers such as cliffs, rocks, or rivers, etc., to contain the fire may be regarded as suppression as long as this is part of the suppression strategy.

Wildfire is an unplanned ignition of a wildland fire (such as a fire caused by lightning, volcanoes, unauthorized and accidental human-caused fires) and escaped prescribed fires.

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Wildland Fire is a general term describing any non-structure fire that occurs in the wildland. A wildland fire may be concurrently managed for one or more objectives and those objectives can change as the fire spreads across the landscape, encountering new fuels, weather, social conditions, and governmental jurisdictions.

Applicability

The provisions of this smoke management program apply to all areas of the state under the jurisdiction of the Nevada Division of Environmental Protection. The Division's jurisdiction does not include Washoe or Clark Counties or any Bureau of Indian Affairs (BIA) trust lands.

Provided no acceptable alternative exists (see Permit Application for Management Ignited Prescribed Fires, Section (a) for a discussion of acceptable alternatives), open burning under this smoke management program may be conducted for the following types of projects:

- a. Hazardous fuel reduction;
- b. Slash disposal from timber sales and roads constructed within contract areas;
- c. Wildlife and livestock habitat improvement;
- d. Forest and rangeland improvement;
- e. Insect, weed and disease control;
- f. Site preparation for revegetation;
- g. Watershed management and water yield improvement;
- h. Maintenance and improvement of natural ecosystems;
- i. Maintenance of threatened and endangered species; and,
- j. Other vegetative management improvement projects.
- k. Agricultural practices.

The permitting requirements described below do not apply to small wood fires for recreational, ceremonial, heating or cooking purposes, to burning conducted for agricultural purposes and management, or to burning conducted at single-family residences, as defined under public open burning, at least one mile beyond the boundaries of the following cities, towns and areas:

Babbit, Battle Mountain, Caliente, Carlin, Dayton, Elko, Ely, Fallon, Fernley, Gabbs, Gardnerville, Gardnerville Ranchos, Genoa, Hawthorne, Johnson Lane, Lovelock, McGill, Minden, Tonopah, Topaz Ranch estates, Virginia City, Weed Heights, Wells, Winnemucca, and

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Yerington; and on the Nevada side of the Tahoe Basin, in Carson City and in those portions of Douglas and Lyon Counties that are within one mile of the Carson City line.

An Open Burn Authorization must be obtained for burning conducted for any of the other types of projects listed above in items a through j. No permit is required for burning used as an agricultural practice; however, the Nevada Handbook for Agricultural Open Burning should be consulted. For burns conducted at single-family residences within the cities, towns and areas listed above, the local fire protection agency must request a burn permit to allow public open burning.

A permit (Open Burn Authorization) must be obtained for any fire training being conducted or any other open burns not specifically listed above regardless of size. A fire training burn is a fire ignited for the purposes of instructing professional firefighters, industrial employees or other personnel in methods of fighting fire. Fire training burns do not include the burning of structures unless authorized in advance by the Director of the Department of Conservation and Natural Resources, or authorized by an officer of the State of Nevada or its political subdivisions and concurred in by the Director, in accordance with open burning regulations under NAC 445B.22067.

Smoke Management Contingency Plan

In plans for prescribed fires, each land management organization will have contingency plans identified enabling it to reduce smoke emissions. Contingency plans will be implemented when meteorological conditions warrant, the Nevada Division of Environmental Protection, Bureau of Air Quality Planning determines that acceptable limits of smoke accumulation are or will be exceeded, and/or the responsible land management organization anticipates that the prescription for a particular fire will be exceeded. Should prescriptive elements cease to conform to those in the approved open burn permit, the land manager shall assess the merits and risks of all options and if justified take the appropriate corrective action to reduce further impacts, as well as consult with the Division within 24 to 48 hours.

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Permits

Authority

1. Federal Clean Air Act. Section 118(a), “Control of Pollution from Federal Facilities”; Section 110, Implementation Plans”; Section 116, “Retention of Authority”; Section 169(a), “Visibility Protection for Federal Class I Areas”; Section 176(c), “Limitations on Certain Federal Assistance”.
2. Nevada Revised Statutes. Section 445B.100, Declaration of public policy; Section 445B.110, Air pollution defined; Section 445B.210, Powers of the commission; Section 445B.220, Additional powers of the commission; Section 445B.230, Powers and duties of the department; Section 445B.235, Additional powers of the department; Section 445B.240, Power of representatives of department to enter and inspect premises; Section 445B.300, Operating permit for source of air contaminant; notice and approval of proposed construction; administrative fees; failure of commission or department to act; Section 445B.450, Notice and order by Director; hearing; alternative procedures. Section 445B.595, Governmental sources of air contaminants to comply with state and local provisions regarding air pollution; permit to set a fire for training purposes; planning and zoning agencies to consider effects on quality of air.
3. Nevada Administrative Code. Section 445B.22067 Open burning. Section 445B.275, Violations: Acts constituting; notice.
4. Implementation of this program in no way supersedes the authority of local governments to regulate and control smoke and air pollution under NRS244.361 and NRS268.410 or the authority of the state forester to regulate controlled fires under NRS527.122-527.128.

Permit Application for Management Ignited Prescribed Fires

Land managers must obtain a permit called an Open Burn Authorization from the Nevada Division of Environmental Protection for all management ignited prescribed fires which emit greater than 1.0 ton of PM10 and for any fire training being conducted regardless of size. The permit must be obtained prior to ignition. For each project emitting between 1.0 and 10 tons of PM10, a one-page permit application form must be completed and submitted to the Division at least two weeks prior to the planned date of ignition. For fires emitting more than 10 tons of PM10, the complete application package must be submitted at least 30 days prior to the planned ignition date. Completed applications will be reviewed by the Division and, if approved, signed and returned to the applicant as soon as possible, but at least one week prior to the planned date

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of ignition. Should circumstances occur which will not allow the land manager to submit a completed permit application 14 or 30 days prior to the burn, the Division will make a good faith effort to work with the land manager to issue the permit as soon as possible.

The issuance of a permit does not constitute final approval. Final approval must be requested one business day prior to ignition (see “Pre-ignition Notification”). Final approval will be based on favorable fire weather forecast conditions and ambient air quality conditions. If a request for final approval is denied, the Division can provide the land manager with written record of that denial within 10 days after the verbal denial was issued.

Permit Application Requirements

1. For prescribed fires emitting more than 1.0 but less than 10 tons of PM10, the permit applicant need only complete the application form provided by the Division (Appendix 1). The Division may request additional information from the burn plan if available.
2. For prescribed fires emitting more than 10 tons of PM10 and located more than 15 miles from a smoke sensitive area, Class 1 area or carbon monoxide or particulate matter non-attainment area, the completed application must be accompanied by a burn plan. The burn plan must include the following:
 - a. The specific location and description of the area to be burned;
 - b. The responsible personnel;
 - c. An emergency telephone number that is answered 24 hours a day;
 - d. The property owner;
 - e. The agency/contractor conducting the burn;
 - f. The burn prescription;
 - g. The number of acres to be burned, the type of fuel, fuel loading estimates and the ignition technique to be used;
 - h. A list of agencies and private parties involved;
 - i. A model predicting the impact of smoke (both visibility and PM10) on smoke sensitive receptors. The model shall incorporate all known smoke sensitive receptors within 15 miles of the fire. Modeling requirement may be evaluated on a project by project basis with consultation with the land management agency.
 - j. Discussion of public notification to be conducted; and
 - k. Evaluation of alternative treatments.

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3. For prescribed fire projects emitting more than 25 tons of PM10, or more than 10 tons if the burn is within 15 miles of a Class I area, an area that is non-attainment for particulates, a carbon monoxide non-attainment area, or other smoke sensitive area, the following information must also be submitted with the burn plan:
 - a. A smoke management plan including actions taken to minimize emissions before, during and after the fire;
 - b. Emission estimates including the models, methods and emission factors used;
 - c. Identification of all smoke sensitive areas located within 15 miles of the project;
 - d. Safety and Contingency plans.
 - e. List of potential affected air regulators to be notified; and
 - f. Air monitoring to be conducted.

In reviewing the application for an open burning permit, the Division will consider the following factors, in addition to ensuring that all required elements have been submitted based on the size of the burn:

- a. **Consideration and evaluation of alternatives to burning**

When one management objective is to maintain a fire dependent ecosystem the effects of fire cannot be duplicated by other tools. Fire may be the preferred management tool even when other treatments may be equally effective for meeting other objectives. Fire can also be used to reduce heavy fuel loads and prevent catastrophic wildfires. Wildland owners/managers may have an array of tools, including fire, which can be used to accomplish land use plans, depending on the resource benefits to be achieved. Several factors should be considered when selecting appropriate treatments. Those factors include the environmental impacts (e.g. air and water quality, soil, wildlife, etc.), whether fire must be used to meet management objectives and the costs of treatment. The best combination of treatments are those that meet management goals with the most favorable environmental impacts at the most reasonable costs.

A detailed description of the alternatives considered and the rationale for rejecting them must be submitted for all projects estimated to emit more than 10 tons of PM10. The Division recognizes that alternatives are not without potential negatives and that multiple resources must be weighed along with air quality benefits. However, a permit will not be issued if this information has not been submitted. For smaller projects, the certification signed by the responsible party indicating that alternatives have been considered will suffice. However, the responsible signatory should be prepared to discuss the

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alternatives considered should Division staff request the information. Once the Division determines that the description of alternatives considered and the rationale for rejecting them has not been submitted, the Division will immediately notify the permit applicant and request the information. If the applicant is unable to provide the information, the Division will notify the applicant in writing that the application is incomplete and that the permit cannot be issued.

b. Proximity to populated areas and points of nearest public access

For any project generating more than 10 tons of PM10, the applicant shall provide information regarding the proximity of all smoke sensitive areas located within 15 miles of the planned project and the points of nearest public access. The applicant shall highlight smoke sensitive areas on a map depicting the project location. Procedures for notifying the public of burn dates in smoke sensitive areas shall be included with the applicant's burn plan.

c. Climatic conditions on the day or days of burning

Where burn plans are required, burns must be conducted within the meteorological conditions indicated in the burn plan, but the Division may limit projects in certain geographic areas during "high pollution periods" when existing air quality or cumulative impacts may warrant such limitations.

d. Potential contribution to area air pollution

The applicant shall demonstrate that applicable ambient air quality standards (within and outside of Nevada) will not be violated for projects that will emit more than 25 tons of PM10 or for projects that emit more than 10 tons of PM10 and are located within 15 miles of a Class I area, an area that is in non-attainment for carbon monoxide or particulate matter, or a smoke sensitive area. This demonstration shall be conducted using currently accepted models. The model output shall explicitly show conditions under which the burn will be conducted so as to minimize impacts of emissions.

Valid permit dates. Although the Division would like to monitor potential burns as closely as possible, we recognize that land managers must be able to respond to meteorological conditions appropriate for the burn being permitted. Permits will be issued that are valid for up to three months, or as many as twelve months for fire training projects. If more time is required, the applicant can request additional time when the application is submitted. Each permit shall be valid for the dates listed on the permit. The permittee must note the expiration date of each

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permit. Requests for an extension or modification of dates may be made verbally, but must be approved by the Division in writing prior to the burn taking place.

Permit Conditions

The following permit conditions shall apply to permits issued by the Division of Environmental Protection for open burning.

1. **Air pollution emergencies and alerts:** Permits will not be valid during periods of air pollution emergency or alert in the area of burning. At the determination by the Division of such a period, the Division shall notify each permit holder.
2. **Pre-ignition notification and approval:** For projects emitting more than 1.0 ton of PM10, the land manager must notify the Division one business day preceding the burn and received final approval before the prescribed burn can be ignited. See “**Pre-ignition Notification**” for further information.
3. **Smoke Management:** In order to minimize smoke impacts and emissions, each permittee shall apply the best smoke management and emission reduction techniques. It is recognized that no two fires are alike in terms of smoke emissions and impacts. Neither are any two fires alike in the smoke management options available. Therefore, the land manager will select appropriate smoke management techniques on a case-by-case basis. While the application of smoke management is required in order to obtain a permit from the Division, it is a general goal and responsibility of the land manager to select the appropriate emission reduction and impact minimization techniques for each fire.
4. **Precautions:** Prescribed fires shall be supervised by one or more responsible persons dependent on the type of burning. Precautions shall be taken to localize the burning and to, in no way, constitute a fire hazard to persons or property within or adjacent to the burn area. The granting authority and the employees or agents thereof, in the issuing of a permit, do not assume any responsibility or liability for any hazardous condition created by the permittee which results in damage to the person or property of the permittee, or the person or property of any third person.
5. **Availability of Permit:** The approved permit or copy thereof shall be available at the burn site.

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6. **Inspection by the Division:** All open burning operations shall be subject to inspection by the Division.
7. **Local Regulations:** The permit is for compliance with state air pollution control requirements only and is not a permit to violate any existing local laws, rules, regulations, or ordinances regarding fire, zoning, or building.
8. **Revocation of Permit:** If at any time the Division determines that any condition of the permit is not being complied with, the permit may be revoked for the specific project where non-compliance is occurring. At such time, all burning activities at the site of the non-compliance shall be terminated. In addition to revocation of the permit, the Division may take any other enforcement action authorized under state statutes, rules and regulations.
9. Other Conditions may be added to the permit if deemed necessary by the Division and approved by the SMP working group.

Pre-ignition Notification

Pre-ignition notification must be given to NDEP for all prescribed burns for which an Open Burn Authorization has been issued. The land manager must notify the Division as soon as practicable, but no later than 2 pm of the business day preceding the burn. Notifications must be made to the Smoke Management Coordinator at (775) 687-9360 or to smoke@ndep.nv.gov. The land manager will leave a message including the date of the proposed burn, the permit number, location, responsible agency, estimated number of acres to be burned and a contact name and phone number. For each Open Burn Authorization, NDEP will track and verify that an applicable Open Burn Authorization has been given and that either a pre-ignition notification has been received or a pre-burn approval has been issued.

For those prescribed burns estimated to emit 10 tons of PM10 or greater, the land manager shall **not** ignite the prescribed burn without **first** receiving the **approval** of the Division. Notification of the intended ignition shall be made as soon as practicable, but no later than 2 pm of the business day preceding the burn. The Division shall issue a final decision on the burn, either approval, approval with conditions, or disapproval, by 5 pm on the business day prior to ignition. If an ignition is planned for the weekend or Monday, notifications and requests for pre-burn

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approval must be received by noon on Friday. If the Division does not communicate its decision by 5 pm of the business day prior to ignition, the burn is deemed approved.

NDEP will disapprove of the burn if forecasted conditions are not favorable; including conditions not favorable for optimal smoke dispersal, or if ambient air quality conditions are poor. In making its decision, NDEP will review forecasted weather conditions for the burn area and discuss the conditions with the agency conducting the burn. At the Division's discretion, resources used to assess conditions will include: the National Weather Service, Wildland Fire Assessment System, data from nearby ambient air quality monitor stations, the California 13:00 hour call originating daily from USFS Predictive Services in Redding, and adjacent air pollution control agencies burn/no burn decisions. Additionally, for prescribed fires near the California border the California Prescribed Fire Information System (PFIRS) will be consulted. The Division may consider BLUESKY (from CANSEC) or HYSPLIT Trajectory Model outputs if available. If a land manager wishes to receive written notice of any denial, a message to that effect should be left on the Smoke Management Hotline at (775) 687-9360 or at smoke@ndep.nv.gov.

Affected Agency Notification

For prescribed fire projects that emit more than 10 tons of PM10 and are within 15 miles of the state border, BIA trust lands managed under the jurisdiction of a tribal air quality agency, or the borders of Washoe or Clark counties, the air regulators of those counties, tribes or bordering states must be notified prior to the burn. A list of the agencies and individuals to be notified must be included in the burn plans. Appendix 2 provides a listing of state, local and BIA/tribal contacts. This list will be updated by the Division at least annually.

Wildfire

Wildfire will not require a permit.

Wildfire Smoke Assessment Coordination

Cooperation among land management agencies and air regulatory agencies during a significant wildfire event is essential to protect human health, maintain air quality standards and reduce

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visibility impairment. A significant wildfire event is one that is determined by NDEP or the land management agency to have a high potential to result in serious or sustained smoke impacts to a local community or a region of the state. Concern over smoke from wildfires requires that a strategy be adopted that identifies potential management actions that may be used to identify and mitigate smoke impacts. The goal of Wildfire Smoke Assessment Coordination is to provide land management agencies and NDEP with a list of potential management actions that may be used when unhealthy air quality levels occur so that adverse public health effects caused by smoke from wildfires are mitigated.

Communication is critical to meeting this goal. In cases of a significant wildfire event within the state, there should be regular communication between the land management agency in whose jurisdiction the wildfire occurs and NDEP in order to assess ambient air quality conditions and exchange information. Mutual contact should be made when unhealthy air quality conditions exist or when periods of poor atmospheric dispersion are predicted. Coordination should focus on the following elements:

- a) Exchange of basic fire information such as the location, daily anticipated growth, estimated control date, and estimated incident size;
- b) Providing opportunities for NDEP to partake in conference calls as needed;
- c) Facilitating NDEP participation in field observations of wildfires if appropriate;
- d) Coordinating placement of portable ambient air quality monitoring equipment in smoke-sensitive areas as needed;
- e) Making provision for the land management agency to make available smoke information when the agency distributes wildfire information to the public;
- f) Arranging for joint discussions by the land management agency and NDEP on predicted smoke plume direction and distribution;
- g) Collaboration between the land management agency and NDEP on smoke advisories and other information issued on current and predicted smoke concentrations in order to assist land managers and the public in making informed decisions.

Through mutually beneficial coordination during significant wildfire events, NDEP and the land management agencies will take action to identify smoke impacts and provide information to assist the public in taking reasonable precautions. All parties involved in wildfire smoke coordination will assess the usefulness of the Wildfire Smoke Assessment Coordination policy outlined above, which may be utilized as a template to develop a more formal wildfire smoke response protocol in the future.

Post Burn Emissions Reporting

Permitted users of prescribed fire are required to submit a Post Burn Emissions Report following the completion of the prescribed fire project. Post burn reporting applies to every burn authorization issued, except those authorizations issued for fire training and weed abatement projects, and those that result in emissions of less than 1 ton of PM10. The Post Burn Emissions Report is in spreadsheet form and will be provided by the Division (Appendix 4). Information to be reported includes: the permit number, the project name, the agency name, dates of burning, project location, project acres and actual acreage burned, burn type, fuel type, fuel loading, PM10 emissions estimates, emission factors used, emission reduction techniques, and contact name. The Post Burn Emissions Report will be submitted by email to the Division smoke management coordinator within 30 days of project completion. Several projects may be listed on the same Post Burn Emissions Report.

Burn Oversight, Fire Behavior and Environmental Monitoring

Requirements for Agency-Conducting Burn

1. Prescribed fire --
 - a. If at any time the responsible land management agency determines that the prescription for a particular prescribed fire has been exceeded (including impacts on visibility) and/or conditions of the permit are not being met (i.e., designated areas for burn, proper notification, etc.) the responsible parties shall promptly initiate suppression action, modify the prescription, or other appropriate action. The responsible signatory must monitor the actual fire to a sufficient level to provide information regarding whether or not the fire is within prescription. Monitoring data collected before, during and after the burn should be used to evaluate the achievement of specific smoke management objectives, and to provide feedback for refinement of future prescriptions.
 - b. If at any time it is determined by the Division, in consultation with the responsible land management agency, that the prescribed fire is degrading air quality to levels expected to violate air quality standards and/or permit conditions, the responsible parties shall promptly initiate suppression action unless, after consultation with the Division, the prescription is modified, or other appropriate

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actions are taken. Factors that the Division will consider in this determination include, but are not limited to:

- i. Modeled data that indicates expected violations of any Ambient Air Quality Standard (e.g. carbon monoxide (CO), particulate matter under 10 microns in diameter (PM10), or particulate matter under 2.5 microns in diameter (PM2.5));
- ii. Air quality monitoring data that indicates expected violations of any Ambient Air Quality Standard;
- iii. Proximity of the fire to smoke sensitive areas;
- iv. Citizen complaints;
- v. National Weather Service Fire Weather Forecast predictions;
- vi. Fuel conditions;
- vii. Existing and predicted size of the fire.

Checklist for Field Oversight of Prescribed Fire

The Division may provide staff oversight of prescribed burns. Staff conducting field oversight of prescribed burning may verify the following:

- Nature of the burn, field conditions, and location of smoke sensitive areas match information provided in the Open Burn Authorization and the burn plan developed by agency conducting burn;
- Onsite weather conditions are favorable for smoke dispersal, including wind speed and direction;
- Test burn was conducted and results suggest favorable conditions, including mixing height and dispersion;
- Fuel conditions are favorable for smoke mitigation (how wet or green are the fuels);
- Public notifications were made in accordance with the smoke management plan submitted by the agency conducting the burn;
- Smoke is not impacting nearby residents or smoke sensitive areas as the burn progresses;
- Other factors necessary to demonstrate compliance with the SMP.

A land manager conducting a prescribed burn shall permit Division staff to enter and inspect

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burn sites, before, during and after burns, to verify the accuracy of the permit information and compliance with the burn plan and smoke management plan, if appropriate. The burn boss, their designee, or other onsite official of the agency conducting the prescribed fire should be prepared to answer Division questions involving the items listed above. Site inspections conducted by the Division during and after fires shall be coordinated with the appropriate the land manager as necessary to ensure the safety of Division employees and land managers. Should protective equipment be required, Division employees will have been properly trained in its use prior to entering any restricted area. Except under extraordinary circumstances, inspections will be conducted during reasonable business hours. Inspections on private property will be limited to valid permit days and within one week following the prescribed fire. The permit may be revoked and enforcement actions taken should the Division determine that any condition of the permit is not being complied with, if the project is degrading air quality to levels expected to violate air quality standards, or if smoke is impacting smoke sensitive receptors.

Air Quality Monitoring and Sampling

Requirements for Agency Conducting the Burn

The extent of air quality monitoring should match the size of the fire and potential human health impacts. For small fires or fires that are remote enough to result in no noticeable impact on the public, visual monitoring of the direction of the plume and monitoring nuisance complaints by the public may be sufficient. Other monitoring techniques include posting personnel on vulnerable roadways to look for visibility impairment and initiate safety measures for motorists; posting personnel at other smoke sensitive areas to look for smoke intrusions; using aircraft to track the progress of smoke plumes; and continued tracking of meteorological conditions during the fire. For larger fires of extended duration locating real-time particulate matter sampling at smoke sensitive areas may be warranted to facilitate timely response to smoke impacts.

If pollutant levels are anticipated to create a significant threat to human health, the Division may require the responsible land management agency to sample air quality in or near population centers impacted by smoke generated from a particular prescribed fire or wildfire. The Division will assist in identification of instrumentation, site selection, installation of instrumentation, operation, calibration, quality assurance, quality control, laboratory analysis, data interpretation and supplies. Impact from wildfire will be monitored by the Division.

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Due to the cooperative interagency nature of this Smoke Management Plan, cost sharing and pooling of resources associated with monitoring and/or modeling is understood. For monitoring and sampling of smoke generated by prescribed fire, the Division may ask the responsible land management agency for financial reimbursement as negotiated and mutually agreed upon on a case-by-case basis between the Division and the responsible land management agency before resources are expended on modeling or air quality sampling.

Division Sampling for National Ambient Air Quality Standards by means of a Smoke Trailer at Large Burns with Potential for Impacts to Smoke Sensitive Areas

The Division will consider deployment of a smoke monitoring trailer for large prescribed burns, defined as those that are in excess of 10 tons of PM₁₀, or greater than 500 acres in size, or those that may pose a risk to smoke sensitive areas. Factors that will be considered in the decision to deploy the trailer include:

- Coordination with burn boss or other authority
- Size of burn (acres/piles) and estimated tons of PM₁₀ and PM_{2.5};
- Proximity to smoke sensitive areas;
- Sufficient lead time, staff availability, and travel approval;
- Ease of access and availability of secure location.

The trailer-mounted E-BAM monitor will be positioned in the anticipated downwind location nearest the most likely-impacted smoke sensitive area. It will be used to collect 24-hr PM-10 and/or PM_{2.5} data. The data will either be read by the on-site staff member or will be electronically transmitted back to the Division. Daily readings will be forwarded by the on-site staff member or the Monitoring Supervisor to the BAQP Chief.

PM₁₀ or PM_{2.5} data that attain 80% of the ambient standard concentration level (24 hour standard) may trigger:

- A revocation of the Open Burn Authorization and a requirement to cease further burning issued to the agency conducting the burn.
- An alert or warning to protect the public drafted in accordance with NRS 445B.560 and issued in conjunction with local or state health officials, should the smoke constitute an imminent and substantial danger to the health of persons.

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Program Support

Land managers and air regulators will work together to assess program implementation needs and to develop a mechanism for providing adequate program support. Program support may be in the form of in-kind services, equipment and space. Program support agreements will be formalized under an MOU and an Interagency Agreement between the Nevada Division of Environmental Protection and the land management agencies. The agreement will be evaluated periodically to ensure that implementation needs continue to be met.

Smoke Management and Emission Reduction Techniques

Each land manager conducting prescribed burning shall implement as many smoke management and emission reduction measures as are feasible for the specific burn and shall include a description of the emission reduction techniques used in the post-fire activity report submitted. The following smoke management and emission reduction techniques are considered best management practices. However, the Division understands that emission reduction techniques (or best available control measures) are not without potential negatives and must be prescribed and used with careful professional judgment and full awareness of possible tradeoffs.

1. Reducing the biomass by use of techniques such as yarding or consolidation of unmerchandisable material, multi-product timber sales or public firewood access, when economically feasible. When allowing public firewood access, the public must also be informed of the adverse impacts of using green or wet wood as fuel;
2. Burning in seasons characterized by meteorological conditions that allow for good smoke dispersion;
3. Using mass ignition techniques such as aerial ignition by helicopter to produce high intensity fires with short duration impacts;
4. Igniting burns under good-to-excellent ventilation conditions and suspending operations under poor smoke dispersion conditions;
5. Considering smoke impacts on activities conducted by local communities and land users;
6. Burning only those fuels essential to meet resource management objectives;
7. Minimizing duff consumption and smoldering through fuel moisture considerations;
8. Minimizing dirt content when slash piles are constructed by using a root rake on material-moving equipment and by constructing piles under dry soil conditions or by using hand piling methods;

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9. Burning piles when other burns are not feasible, such as when snow or rain is present;
10. Using all opportunities that meet the burn prescription and all burn locations to spread smoke impacts over a broader time period and geographic area;
11. Burning during optimum mid-day dispersion hours, with all ignitions in a burn unit completed by 3 p.m. to prevent trapping smoke in inversions or diurnal wind flow patterns;
12. Using chunking of piles and other consolidations of burning material to enhance fuel consumption and to minimize smoke production;
13. Implementing maintenance burning in a periodic rotation mimicking natural fire cycles to reduce excessive fuel accumulations and subsequent excessive smoke production through smoldering or wildfire; and,
14. Managing smoke impacts as follows:
 - a. Limiting smoke impacts to roads, highways, and airports to the amounts, frequencies, and durations consistent with any guidance provided by highway and airport personnel;
 - b. Using appropriate signing if smoke will impact any point of public access, i.e. highways, dirt roads, trails, campgrounds, etc.
 - c. Notifying the public at potentially impacted smoke sensitive areas; and
 - d. Determining nighttime impacts and taking appropriate precautions.

Burner Qualifications

All burns conducted by state and federal land managers shall be conducted by personnel trained in prescribed fire and smoke management techniques to the minimum level required by the land management agency in charge of the burn.

The local fire management officer of the state or federal land management agency having jurisdiction over the prescribed burn shall have had smoke management training obtained through successful completion of a National Wildfire Coordinating Group (or equivalent) course dedicated to smoke management.

Enforcement

The Division stresses the importance of compliance with the provisions of this SMP by the agencies conducting prescribed burning. Adherence to the SMP helps maintain levels of air

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quality which are protective of human health, as well as sustain visibility and the scenic and esthetic values of the state. Failure to comply with the procedures and conditions specified in the Open Burn Authorization may result in enforcement action.

The Division has been granted a number of authorities in the Nevada Revised Statutes and the Nevada Administrative Code to assist in enforcing requirements that preserve air quality. NRS 445B.230 provides broad authority to make determinations and issue orders as may be necessary to implement the programs that protect air quality. Violations are addressed in NRS 445B.450, which provides authority for the Division to serve written notice upon the person or persons responsible for alleged violations. Regulations under NAC 445B.275 specify the types of violations for which written notice may be issued. A notice may be issued that includes an order to take corrective action within a reasonable time, or may require the person or persons responsible for the alleged violation to appear before the State Environmental Commission. The action may require further coordination and mutually agreeing to refine strategies or methods that utilize experiences to reduce the risk of public health issues. Violations may result in penalties of up to \$10,000 per day per violation being assessed.

Appendix 1 -- Copy of the Open Burn Authorization Permit Application

Appendix 2 -- Local, State and Tribal Air Quality Agency Contacts

Appendix 3 -- Applicable State and Local Statutes and Regulations

Appendix 4 -- Post Burn Emissions Report Form