

Smoke Management Plan 05.10.2022



WASHINGTON STATE DEPARTMENT OF
NATURAL RESOURCES

This document and its appendices is the Washington State Department of Natural Resources' (DNR) official Silvicultural Smoke Management Plan. Its provisions are fully enforceable by DNR under state law and policy.

Adopted on this 11th day of May, 2022.

A handwritten signature in black ink, appearing to read "George Geissler", written over a horizontal line.

George Geissler, Washington State Forester

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Introduction

The people of Washington State care about the quality of our air. In response to that concern, the Department of Natural Resources (DNR), Department of Ecology (Ecology), U.S. Forest Service (USFS), National Park Service (NPS), Bureau of Land Management (BLM), participating Indian nations, military installations (DOD), and small and large forest landowners have worked together to deal with the impact of silvicultural burning on our air.

The requirements of DNR’s Silvicultural Smoke Management Plan apply to all agencies, businesses, and persons who must obtain a burning permit for silvicultural operations, per the requirements of WAC 332.24.201. Those who are not required to obtain a permit are managed under other rules and regulations.

Protection of public health and preservation of the natural attractions of the state are high priorities that DNR can accomplish, along with a limited, but necessary, silvicultural burning program. DNR, in coordination with burners, the public, and regulatory partners, can provide public health, public safety, and forest health through the provisions of Washington State law and this Smoke Management Plan (SMP). Further with the efforts of the burners, we can further reduce the negative impacts of wildland fires

The SMP applies to DNR regulated silvicultural (forestland) burning only and does not include agricultural burning or outdoor burning that occurs on improved property. Although silvicultural and agricultural burning combined make up less than 10% of particulate matter emissions less than 2.5 microns in diameter (PM_{2.5}), DNR must work to minimize emissions of PM within the framework of a silvicultural burning program (Source: 2014 Washington State Emissions inventory).

DNR has designed the SMP to protect public health and the state’s infrastructure and scenic assets from the impacts of smoke from silvicultural burning, while facilitating broadcast and pile burning for forest health, fuels reduction, and habitat improvement.

In 2016, the legislature provided funds for DNR to update the SMP. Additionally, the legislature passed Engrossed Substitute House Bill (ESHB) 2928, which required DNR to work with partner organizations and agencies to assess the benefits and smoke impacts of Forest Resiliency Burning, or understory and prescribed burning intended to

“improve fire dependent ecosystems, mitigate wildfire potential, decrease forest susceptibility to forest insect or disease as defined in RCW 76.06.020, or otherwise enhance forest resiliency to fire.”
-ESHB 2928

DNR embarked on a yearlong process of choosing burn sites, engaging stakeholders, and supporting monitoring and assessment operations. Per legislative direction, we

have incorporated some of the lessons learned in the implementation of ESHB 2928. Specifically, the legislature required DNR to analyze the effects on air quality of approving large (100 tons of consumable material or more) burns the day prior to ignition. DNR incorporated the results of that analysis into our approach to smoke management decision making.

Purpose

The purpose of this SMP is to coordinate and facilitate the statewide regulation of silvicultural outdoor burning on lands under the authority of DNR and on unimproved, federally managed forestlands and participating tribal lands. Written under the authorities listed in Appendix 7, the plan is designed to meet the requirements of the Washington Clean Air Act (RCW 70A.15), Forest Protection laws (RCW 76.04), and the United States Clean Air Act (42 USC 7401 et seq.). If there is any contradiction between the requirements of this SMP and statutes, the statutes will prevail.

Goals

- Protect human health and safety from the effects of silvicultural burning RCW 70A.15.1005.
- Facilitate the enjoyment of the natural attractions of the state RCW 70A.15.1005.
- Provide a limited burning program for the people of this state RCW 70A.15.5070.
- Provide the opportunity for essential forestland burning while minimizing emissions RCW 70A.15.5130.
- Maintain emissions from silvicultural burning other than for forest health reasons to the year 2000 threshold, as required by law RCW 70A.15.5130.
- Foster and encourage the development of alternative methods for disposing of, or reducing the amount of organic refuse on forestlands RCW 70A.15.5140.
- Acknowledge the role of fire in forest ecosystems and allow the use of fire under controlled conditions to maintain healthy forests. RCW 70A.15.5140.

Scope

This plan provides regulatory direction, operating procedures, and advisory information regarding the management of smoke and fuels from silvicultural burning on the forestlands of Washington State. It applies to all persons, landowners, companies, state and federal land management agencies, tribes who opt into the plan and others who conduct silvicultural burning in Washington State.

This SMP does not apply to agricultural burning and open burning as defined by Washington Administrative Code (WAC) 173-425-030 (1) and (2), nor to burning done "by rule" under WAC 332-24 or on wildlands (e.g., range lands in Eastern Washington) that are not adjacent to or intermingled with tree growth.

Other kinds of outdoor burning, not covered by this Plan, include:

Residential (Regulated by Ecology and Local Clean Air Agencies (LCAA))

Fires consisting of leaves, clippings, prunings and other yard and gardening refuse originating on lands immediately adjacent and in close proximity to a human dwelling and burned on such lands by the property owner or his or her designee. (RCW 70A.15.5080)

Land Clearing (Regulated by Ecology and LCAA)

Fires consisting of residue of a natural character such as trees, stumps, shrubbery or other natural vegetation arising from land clearing projects or agricultural pursuits for pest or disease control; except that the fires described in this subsection may be prohibited in those areas having a general population density of one thousand or more persons per square mile. (RCW 70A.15.5080)

Agricultural (Regulated by Washington State Department of Ecology and local Clean Air Agencies)

Any person who proposes to set fires in the course of agricultural activities shall obtain a permit from an air pollution control authority, the department of ecology, or a local entity delegated permitting authority under RCW 70A.5100. General permit criteria of statewide applicability shall be established by the department [of Ecology], by rule, after consultation with the various air pollution control authorities. (RCW 70A.15.5090(1))

The plan does not address nor attempt to regulate natural fire managed for public benefit for several reasons: it is impossible to "regulate" unforecastable natural ignitions, it is nearly impossible to gather real-time emission data efficiently in the areas where this type of burning generally takes place or to decipher objectives between what is 100% suppression and what is a managed portion of the fire. Federal agencies that have adopted the use of prescribed natural burns will remain solely responsible for the administration of such programs.

Participation

Recipients of fire protection from DNR, or from agencies contracted by DNR, must abide by the requirements of this SMP. This includes all burning done on private and state-managed lands that pay, or are subject to paying, Forest Protection Assessments.

Federal agencies conducting silvicultural burning on forestlands must participate in and abide by the requirements of this plan under the direction of the federal Clean Air Act. These agencies include, but are not limited to, the Forest Service (USFS), Park Service (NPS), Fish and Wildlife Service (F&WS), Bureau of Land Management (BLM), and Department of Defense (DOD):

Each department, agency, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or facility, or (2) engaged in any activity resulting, or which may result, in the discharge of air pollutants, and each officer, agent, or employee thereof, shall be subject to, and comply with, all Federal, State, interstate, and local requirements, administrative authority, and process and sanctions

respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity. (42 USC 7418 (a))

Indian nations may choose to participate in all or portions of the SMP. Participation would be by written agreement between the Indian nation and DNR. Advantages of participation by Indian nations would include statewide coordination of silvicultural burning, shared weather forecasting services, uniform data reporting and storage, better protection of the public through a unified burn approval system, and compliance with all EPA requirements.

Responsibilities

DNR is responsible for the overall enforcement and administration of the SMP. The Wildland Fire Management Division Manager delegates operating responsibilities to DNR Regions. Other agencies in both the state and federal governments also have responsibilities under the plan, as discussed further in this section.

The Wildland Fire Management Division Manager is responsible for:

- Providing smoke management operating procedures for DNR Regions and federal land managers.
- Providing technical expertise, meteorological information and forecasts, and training to both divisions and regions related to this plan.
- Developing performance standards for DNR Regions.
- Coordinating among Smoke Management Plan participants.
- Approving or disapproving large burns (and small burns within UGAs) depending upon meteorological conditions, potential smoke intrusions or National Ambient Air Quality Standards (NAAQS).
- Developing and maintaining systems for gathering, transmitting, and reporting data required by the SMP. This includes collection and reporting of emissions data from silvicultural burning, as required by RCW 70A.15.5130.
- Developing and maintaining systems for notifying Agencies/affected public of any proposed or active silvicultural burning.
- Coordinating responses to complaints when they are determined to result from silvicultural burning.
- Collecting required fees from federal landowners.
- Specifying to burners the documentation needed to fulfill the requirements of the Exceptional Events Rule.
- Providing all DNR documentation used to inform an Exceptional Events Demonstration.
- Maintain records for 3 years.

DNR Regional Managers are responsible for:

- Implementing the SMP on state and private lands that receive fire protection from DNR.
- Approving or disapproving silvicultural burns, taking into consideration fire danger, air quality impacts and local knowledge.
- Ensuring that DNR standards and operating procedures are followed.
- Assigning priorities for burning on state and private lands.

- Providing necessary information and required data to Wildland Fire Management Division.
- Collecting permit fees from state and private burners.
- Reporting and documenting where and when smoke intrusions occur, responding to citizen complaints about smoke nuisances on state and private lands and providing feedback to the Wildland Fire Management Division when necessary.
- Notify relevant Ecology Regions and Local Clean Air Agencies of the response to and resolution of any complaints.
- Coordinating plan implementation with local fire districts, Ecology regions and LCAA.
- Ensuring that field enforcement is conducted and is consistently applied.
- Provide Ecology with data used to make burn decisions to inform Exceptional Events Rule demonstrations upon request.

The Washington State Department of Ecology Director is responsible for:

- Establishing "Designated Areas."
- Adopting federal NAAQS into Washington rules and/or establishing other air quality standards (see Appendix 7).
- Notifying DNR when air quality has diminished to the point when "impaired air" or a "forecasted stage of air pollution episode" has been, or is likely to be, declared.
- Maintaining the State Implementation Plan, which includes visibility protection of Class I federal areas.

The Washington State Department of Health Director is responsible for:

- Collaborating with DNR, ECY, and LCAAs when smoke intrusions occur.
- Issuing health advisories as needed, or delegating such issuance to county authorities.

Other responsible officials

The following federal officials are responsible for meeting the requirements and operating procedures of this SMP on lands under their control:

- The Forest Supervisor for the US Forest Service (USFS).
- The Park Superintendent for the National Park Service (NPS).
- The Refuge Manager for the Fish and Wildlife Service (F&WS).
- The District Manager for the Bureau of Land Management (BLM).
- The Base Commander for the Department of Defense facilities (DOD).

The tribal designee or government body specified in the agreement between DNR and any Indian Nation will be responsible for meeting all requirements and operating procedures.

Enforcement

The primary enforcement mechanisms employed by DNR are education regarding requirements and mitigating impacts as they occur, followed by revoking current burn permits and withholding permits, if there is a refusal to comply. Permit holders who are repeatedly in violation the SMP may have their current burn permits and

ability to apply for new permits suspended until they demonstrate the ability to comply with the SMP.

DNR has specific authority to issue orders revoking or suspending burn privileges or permits when necessary to prevent air pollution or for the safety of adjacent property. RCW 76.04.205(4); WAC 332-24-205(1). DNR may also suspend burning under RCW 76.04.315 in order to address unusual fire danger. Any burning that occurs without a required permit, or in violation of any permit requirements, violates WAC 332-24-201(4) or other provisions of WAC 332-24. Any burning in violation of DNR rules voids any prior permission granted to burn WAC 332-24-217.

If necessary, DNR has specific authority to issue civil penalties for violations of RCW 76.04.205 per RCW 70A.15.3160 . As directed in RCW 76.04.205, DNR is in the administrative procedure process, including public input, of conducting rulemaking. The rule will establish: (a) A framework for resolving conflicts that may arise related to this section, including the issuance of civil penalties pursuant to RCW 70A.15.3160 for violations of this section; and (b) the method by which penalties issued pursuant to RCW 70A.15.3160 for violations of this section will be calculated.

As a last resort DNR Law Enforcement Officers are stationed throughout Washington to protect the public, employees, and state lands, resources and other assets, and DNR can take action under chapter 76.04 RCW issuing criminal citations for willful violations of permit provisions.

Reporting

DNR will provide reports to the Legislature and Ecology detailing the total emissions from silvicultural burning and other burning statistics and trends, as needed to meet the emission reporting requirements of the Washington Clean Air Act, RCW 70A.15.5130.

After Action Review

Once each year, DNR may convene state, federal, private burners, partner agencies including Ecology and LCAAs, and relevant DNR staff for a full-day after-action review (AAR). The AAR may include:

- Lessons learned.
- Tonnage burned.
- Total annual emissions.
- Outreach and education efforts undertaken.
- Air quality impacts.
- Complaints, if any.
- Interactions between smoke from silvicultural burning, wildfires and other types of burning.
- A look forward to the next burn season, with a focus on priority areas and projects, goals, strategies on how to share the air shed with other burning.
- Any business adjustments needed.

The intent of the AAR is to evaluate the effectiveness, successes and failures of the SMP over the past year and to make improvements as needed to ensure silvicultural smoke is responsibly managed.

General Burning Requirements

Burn Approval Process

The SMP defines categories of different silvicultural burns. The categories are:

- **Small Burns:** A small burn is a fire that will consume less than 100 tons in a 24 hour period.
- **Large Burns:** A large burn is a fire that will consume greater than or equal to 100 tons.
- **Urban Growth Area (UGA) Burns:** An UGA burn is a fire that takes place wholly or in part within a UGA as defined by the county.
- **Multiple Day Burns:** Multiple day burns are projects that burners cannot manage such that smoke will fully disperse by noon on the day after the first ignition of the burn area. DNR will not consider burns that practitioners could reasonably complete in one day but choose to ignite over several days multiple day burns.
- **Low Risk Areas:** Low Risk Areas are defined geographic areas within each DNR Region established in Appendix 10. In “low risk areas” a small burn is one where less than 300 tons will be consumed in a 24 hour period. In “low risk areas,” a large burn is one where ignition will consume 300 tons or more of material.

Small Burns

Except within UGAs, burners who propose to burn small burns must call 1-800-323-BURN and follow the instructions that apply for the day and location of the proposed burning along with applicable terms of their permits. DNR does not require site-specific Smoke Management approval in the case of small burns, except within UGAs (see UGA burning section below).

Practitioners cannot ignite small burns if an air quality episode is declared or conditions of impaired air have been declared by Ecology or the LCAA per RCW 70A.15.5140 and WAC 332-24-205(5). DNR may suspend small burns on private and state lands due to high fire danger (federal officials manage fire danger on federal lands).

Large burns and all burns in Urban Growth Areas

Large burns that will consume 100 tons (300 tons in low risk areas) or more of material require a site-specific DNR Smoke Management decision. Trained smoke forecasting staff, aided by smoke modeling applications, spot weather forecasts, patterns of human settlement, and local knowledge of smoke dispersal patterns, decides whether to allow burns to proceed by 4:30 p.m. on the day before burning is to commence.

By 4:30 p.m. on the day prior to the proposed burning, DNR will make a decision:

- **Yes:** DNR Wildland Fire Management Division considers the Approval Criteria in the following section and based on that criteria decides to approve the burn. Wildland Fire Management Division can give approval for a subset of the requested tonnage.
- On federally managed lands, DNR takes no further action on burn approval. The relevant land manager, such as Forest Supervisor or Park Superintendent gives final approval to burn.
- On all other lands, the DNR region in which the burn takes place makes the final decision to approve or deny based on Approval Criteria, fire risk and resources. In areas with many types of outdoor burning, or where DNR needs further expertise and monitoring, DNR regions may coordinate with partner regulators such as Ecology and Local Clean Air Agencies.
- **No:** DNR Wildland Fire Management Division considers the Approval Criteria in the following section and based on that criteria decides to deny the burn. Except within UGAs, burners may still choose to burn less than 100 tons (300 tons in low risk areas).

Urban Growth Area (UGA) Burns:

Regardless of consumable tonnage, burns within a UGA require a site-specific DNR Smoke Management decision, a documented test fire and a spot weather forecast. Trained smoke forecasting staff, aided by smoke modeling applications, patterns of human settlement, and local knowledge of smoke dispersal patterns, decides whether to allow burns to proceed by 4:30 p.m. on the day before burning is to commence.

By 4:30 p.m. on the day prior to the proposed burning, DNR will make a decision:

- **Yes:** DNR Wildland Fire Management Division considers the Approval Criteria in the following section and based on that criteria decides to approve the burn. Wildland Fire Management Division can give approval for a subset of the requested tonnage.
- The DNR region in which the burn takes place makes the final decision to approve or deny based on Approval Criteria, fire risk and resources. In areas with many types of outdoor burning, or where DNR needs further expertise and monitoring, DNR regions may coordinate with partner regulators such as Ecology and Local Clean Air Agencies.
- The burner must contact the air agency with jurisdiction over the burn area prior to igniting, this contact must include details of the burn such as location, acres, tonnage, and a method to directly contact the burner.
- **No:** DNR Wildland Fire Management Division considers the Approval Criteria in the following section and based on that criteria decides to deny the burn.

Should a burner request day-of permission to burn, DNR will accommodate that request and notify the burner of approval or denial by 8:00 a.m.

Daily Burn Prioritization

In the event that a burn practitioner submits multiple large burn requests for Smoke Management approval, they will rank their requests in priority order. DNR will use that ranking, according to the following criteria, to approve or deny requests should the potential cumulative delivery of smoke from multiple projects risk violating one of the Approval Criteria below. If multiple burns are approved in the same DNR Region or Federal Land Management Unit, the land manager responsible for final burn approval must consider the same criteria:

- Elimination of fire hazard or "extreme fire hazard" as defined in WAC 332-24-650 and WAC 332-24-652.
- Burning conducted in eastern Washington for the purpose of restoring forest health or preventing the additional deterioration of forest health as determined by the Department.
- Burning to maintain fire dependent ecosystems to preserve rare or endangered plants or animals within state, federal, and private natural area preserves, natural resource conservation areas, parks and other wildlife areas.
- Impacts to air quality and public health.

Approval Criteria for Large Burns and All Burns within UGAs

Approval to ignite will be denied if:

1. There is a likelihood of an exceedance of state air quality standards in the ambient air up to 2,000 feet above ground level over areas designated by Ecology (designated areas) (RCW 70A.15.5140).
Approach: Smoke will not significantly disperse within approximately eight hours of ignition, and be fully dispersed by 12:00 PM the next afternoon unless the burn meets the criteria and requirements of a multiple day burn. This does not include residual smoke in the immediate burn area itself.
2. Burning will not protect the public welfare, preserve visibility, protect scenic, aesthetic, historic, and cultural values, and prevent air pollution problems that interfere with the enjoyment of life, property, or cultural attractions. (RCW 70A.15.1005).
3. Burning will not comply with the federal Clean Air Act regarding visibility protection of federal Class I Areas. (42 USC 7470)
4. Ignition will violate any other state or federal air quality regulations, laws, or rules (RCW 70A.15.5140, 76.04.205 and 70A.15.5020).
5. Burning will occur in areas of the state where federal or state ambient air quality standards are exceeded for any criteria pollutant (RCW 70A.15.5020).
Exception: This does not apply to silvicultural burning used to improve or maintain fire dependent ecosystems for rare plants or animals within state, federal, and private natural area preserves, natural resource conservation areas, parks, and other wildlife areas (RCW 70A.15.5020).
6. Burning will cause mandatory emission reduction levels to be exceeded (RCW 70A.15.5020).
Exception: Emissions from silvicultural burning in eastern Washington that is conducted for the purpose of restoring forest health or preventing the additional deterioration of forest health are exempt from the reduction when certain conditions are met.
7. Burning will knowingly violate another state's published air quality standards (42 USC 7470).

8. There is a declared stage of impaired air quality (RCW 70A.15.5140), or air quality conditions are deteriorating and are expected to continue to deteriorate such that an air quality episode is likely to be called in the next 24-hours.

Tools and Resources

DNR uses the following tools to inform decision making (as tools advance, DNR will use the best available science):

Current and forecasted air quality.

Ecology's Air Quality monitoring network, in addition to distributed private networks, inform Wildland Fire Management Division and Regions of air quality concerns. DNR uses information from Ecology's established procedure advising DNR when and where air contamination levels exceed or threaten to exceed the NAAQS (RCW 70A.15.5140).

Weather Conditions

DNR's Meteorologist, or designee, makes daily smoke management forecasts using data from National Oceanic and Atmospheric Administration (NOAA), the National Weather Service, the US Forest Service, DNR Regions, and private sources. The atmosphere is first considered holistically to determine general wind patterns, the position of atmospheric boundaries such as cold fronts, and upper-level forcings which could modify smoke dispersion. DNR then uses local forecasts and observations to consider surface winds (direction and speed), mixing heights, inversion layers, and streamlines to determine smoke dispersion and transport. The meteorologist or designee may use a preferred atmospheric model or combination of local, regional, and global models to create an accurate prediction based on experience and model confidence.

Dispersal conditions

Burn approvals will include consideration of dispersal conditions, that is, of an air shed's ability to disperse the pollutants created by burning. Wildland Fire Management Division predicts largescale dispersion potential and Regions include local knowledge of terrain-atmosphere interactions and local dispersal patterns for individual burn sites.

Burn conditions

DNR reviews burn conditions (fuel moistures, timing of ignition, and the firing method) before issuing burn approvals. These factors relate to minimizing particulate emissions and the impacts of residual smoke on and around the burn site. Those burns that apply the best technology and firing techniques may receive a higher priority than other similar proposed burns using less-efficient-firing techniques.

Availability of suppression forces

In the approval process, the DNR Regional Managers consider the availability of suppression forces to react to potential prescribed burn escapes on DNR-protected lands. They also consider the level of wildfire activity in the Region. Units with high fuel loads on DNR-protected land warrant special attention. Weather factors relating to fire danger, such as wind speed and relative humidity, are important

considerations when evaluating the risk of escape. Further, Regional staff have more complete understanding of the way smoke behaves on local terrain, and can share information with burners, regulatory partners, and Wildland Fire Management Division.

Smoke Intrusions caused by any silvicultural burning

Particulate matter concentrations not exceeding NAAQS can still impact the public and should be avoided. When smoke enters an area with a potential to affect public health, at unacceptable levels, it is called a smoke intrusion. Knowing when and where an intrusion is occurring is possible, using either monitoring data or visibility (in miles) indexes.

Smoke concentrations are considered unacceptable for the purposes of this plan when the 3-hour rolling concentration average exceeds the current Washington State 24-hour average concentration for protecting sensitive individuals from fine particulate matter. As of 2019 this value is 20.5 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$. Public notification of imminent or ongoing smoke impacts is an essential element of fostering trust, empowering the public to protect their health, and building collaboration between partners and the public.

To foster coordination and trust between burners, regulators, and impacted parties, DNR will follow the procedure below to detect and respond to smoke intrusions:

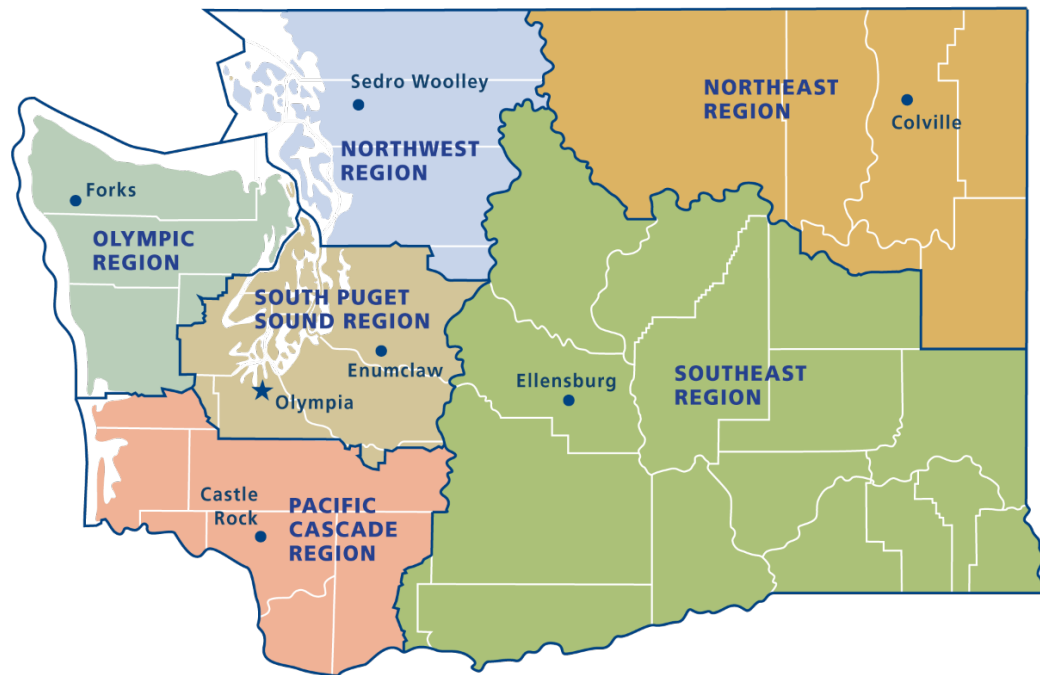
1. On days when silvicultural burns are ignited, DNR Wildland Fire Management Division staff will check monitor readings, communicate with DNR Regional staff and burners, track community webcams, and use other resources to establish the level of smoke, if any, in potentially impacted communities.
2. If weather conditions, burn conditions, monitor readings (when available), or public complaints suggest that smoke has entered an area at a 3-hour rolling average, using generally accepted forecasting tools, at a concentration equal to or greater than Ecology's 24-hour average goal for protecting sensitive individuals (20.5 $\mu\text{g}/\text{m}^3$ of $\text{PM}_{2.5}$) from fine particulate matter, contacts will be made by the following:
 - a. DNR Region will contact the burn practitioner to discuss actions to mitigate smoke quantity and transport, and to foster coordination with other burners operating in the area. Burners must be prepared to implement emission reduction techniques if they independently detect an emergent intrusion.
 - b. DNR Wildland Fire Management Division will contact the relevant County Health Department, so that they can determine whether a health advisory is necessary and to act accordingly, and
 - c. DNR Region will contact the air agency with jurisdiction.

In the event that the burner detects an imminent intrusion, they must contact the permitting DNR Region. If the DNR Region hears of the possibility of an intrusion, they should contact DNR Wildland Fire Management Division and immediately start working with the burner. If Wildland Fire Management Division hears of the possibility of an intrusion they must immediately contact the permitting DNR Region.

3. As the day of ignition progresses, DNR will monitor available field resources, including permanent and portable air quality monitors, distributed private monitoring networks, community cameras, and field observations by DNR staff to track the increase or decrease of smoke in impacted communities.
 - a. If particulate matter levels continue to increase, DNR will alert the burn practitioner and all other burn practitioners operating in a 20 mile radius to:
 - i. Take photos of their burn sites, including column and plume photos, if possible.
 - ii. Record hourly wind speed and direction for their sites.
 - iii. Record hourly temperature for their sites.
 - iv. Record atmospheric conditions, such as cloud cover and precipitation for their sites.
 - b. DNR will keep all officials mentioned in 2 (b) of this procedure apprised of developments.
 - c. If DNR determines that an intrusion of smoke has occurred from a DNR approved burn, the accountable burner will write a preliminary intrusion report (see Appendix 4), and deliver it to DNR within 24 hours of the intrusion.
 - d. Within 5 days of the intrusion a thorough report will be submitted to DNR (See Appendix 4).
4. DNR will respond to the intrusion report within 10 business days. DNR's communication will include:
 - a. Any dissension from the facts of the report.
 - b. A summary of all actions taken to mitigate the severity of the intrusion by DNR.
 - c. A review of future actions to be taken to decrease the likelihood of a future intrusion.
 - d. All procedural, operation, or policy changes arising from the intrusion.
 - e. DNR will share all data and the final intrusion reports resulting from this process with applicable partner regulators, including Ecology, LCAA, State and Local Health Departments, and EPA.

Approval Process for Multiple Day Burns

The Wildland Fire Management Division and Regions will apply the same criteria that is used to approve large burns, regardless of burn size. The following notification requirements apply to multiple day burns to ensure that DNR has the opportunity to properly analyze the project prior to approval, and that communities who might be smoke-impacted have ample time to prepare.



Above: Map of the Washington State Department of Natural Resources regions.

The following information and actions are required from the burner before DNR will approve a multiple day burn:

- Rationale for the need to ignite over more than one operational period.
- Smoke monitoring plan which can include any combination of temporary or permanent monitors, cameras, and staff.
- Communication Plan, to include outreach to targeted audiences.
- Coordination call plan, including proposed participants and timing.
- An extinguishment plan for implementation as a last resort.
- Three months before the burn the burner must give DNR the above information to determine the size and scope of the proposal for DNR's review.
- Two months before the burn DNR will determine if the burner has demonstrated that the project's goals meet the criteria for a multiple day burn, and will notify the burner of additional steps needed.
- If DNR determines that the burn has the potential to affect communities, the burner must notify the public of the burn at least one week before they plan to burn. The notification may be published in local newspapers, on traditional broadcast media, or on social media, and may be a paid advertisement, press release, or public service announcement. The notice will list the location, size and duration of the burn, and must include a landowner's phone number to call for updates or more information about the burn. If the burner cannot mitigate potential adverse impacts such that DNR is confident that air quality will not fall below a level that is unhealthy for sensitive populations (defined as $20.5 \mu\text{g}/\text{m}^3$ of $\text{PM}_{2.5}$). DNR will withhold approval.

The following resources must be provided and maintained during the course of multiple-day burn conduct:

- **Forecasting:** The burner must request a spot forecast for each day of ignition.
- **Monitoring:** Burners must identify existing monitoring resources. These can include permanently sited air quality monitors, publicly accessible private air quality monitors, cameras, and on-site or regional staff. In some cases, burners may be required to site temporary monitors in agreed-upon locations.
- **Daily Coordination:** For the duration of the project, all participants identified in the request will have a conference call to discuss objectives and risks, and additional calls prior to the commencement of burn operations daily.
- **Expanded Burn Authority:** For federal burns, the responsible land manager—e.g., Forest Supervisor or National Park Superintendent—will have expanded authority to deviate from a day’s burn plan, not to exceed the total approved tonnage, in the event that conditions allow.

Operationally, the decision process is as follows:

- The initial request to initiate burning is made.
- DNR Wildland Fire Management Division will issue a Yes or No decision using established protocol for approval of large burns
- When a Yes decision is received from DNR Wildland Fire Management Division, decisions to expand ignition beyond the requested tonnage will be made by the land manager based on weather and site conditions. Factors used to make that decision will include: current and expected weather, ability to meet prescription objectives of the burn, and if available, monitoring data from various air quality monitors in the area and coordination with the participants identified in the request.
- If the land manager suspends burning to avoid breaching one of the Approval Criteria, burning operations may resume once conditions warrant without going through the permission process again, so long as burning resumes during the window authorized by the initial smoke management decision. For example, if the smoke management approval authorized burning for four days, and the burner suspended ignition beginning the second day, they can resume on either of the next two days.
- If the burn meets the criteria to be considered an intrusion (see the following section), DNR will consult with the burner to discuss mitigation measures, and modify the burn plan as necessary.
- If burning is suspended for a period extending outside the window of the initial smoke management decision for any reason, the burn approval process will return to Step 1 for approval.
- DNR Wildland Fire Management Division will have the Meteorologist or designee available throughout the multiday burn for consultation.

Exceptions to Provisions of the Smoke Management Plan

Any entity wishing to burn can request an exception to provisions if they can demonstrate that said provision make necessary burning impossible to conduct. Exceptions to provisions of the plan can be granted if the requestor can demonstrate that carrying out the project will result in the same or greater protection of public safety, health, and welfare to that provided by the plan.

At a minimum, exceptions requests must include:

- The specific provision of the Smoke Management Plan for which an exception is requested.
- A rationale for why an exception is warranted, and supporting documentation.
- Elements in the applicant's burn plan that are relevant to the exception request.
- Location, including a map of the project's perimeter.
- A description of any additional steps taken to ensure that smoke does not intrude on a designated area or a Federal Class I area.
- A description, with supporting documentation, of how the exception, if granted, will result in the same or greater protection of public safety, health, and welfare.

Burners should submit exception requests as soon as possible but no fewer than three weeks in advance of the date of proposed ignition. DNR encourages burners to submit requests for exceptions as far in advance as possible. DNR will not revoke an exception unless conditions change such that the underlying reason for the exception request are no longer valid. Any requests submitted less than three weeks in advance of proposed ignition will have minimal chance of approval.

DNR and Ecology will review the proposal in a timely manner. The time line for the review will consider needs of the proponent. DNR will notify the landowner of the decision. DNR's response may include a request for more information or clarification.

If both agencies concur and the exception is approved, the project is still subject to the Go/No-Go Decision, and will be approved or denied final permission to burn based on any of the Approval Criteria.

Complaint Tracking

When a smoke complaint is received by DNR, DNR will obtain as much information as possible and ensure follow up with the complainant. The following actions guide how DNR responds to complaints:

1. The entity receiving the complaint will refer the complainant to the appropriate DNR Region or Federal entity. Information obtained from the complainant needs to include as much of the following as possible:
 - Date, time and location of the smoke (must include this information or DNR/federal entity cannot follow up on complaint).
 - Location of the suspected burn resulting in the smoke.

- Duration of smoke impact, if known.
 - Nature of the complaint.
 - Complainants address and contact information, if available.
 - Any documentary evidence available, including photos, home air quality monitor readouts, etc.
 - Name of person recording the complaint.
 - If the complainant left a voicemail or sent an email, the receiving party will archive or transcribe a copy of the voicemail or email in the current tracking system and convey it to the following people.
 - On-site responsible party, if it can be determined.
 - DNR Region Fire Management Staff.
2. All complaints, including all relevant information will be relayed to appropriate staff the day of the complaint, if on a holiday or weekend duty officers will be available to respond to complainants and burner. Complaints will be logged in current tracking system and the following people will be notified:
 - On-site responsible party.
 - Fire Management Officer of the District in which the burn occurred (Federal land).
 - Applicable DNR Region Fire Forester.
 - DNR Wildland Fire Management Division Staff.
 3. Responsible region or federal entity must attempt contact with complainant and investigate the complaint immediately. If there is no known burn in the area a DNR or Federal employee will be dispatched as a possible fire response. If there is a burn in the area, DNR or the federal entity will evaluate the complaint with the possible result of a field visit and if out of compliance enforcement action may be taken (see Enforcement Section). Should further contact from other participants be necessary, the order of contact will be:
 - DNR Region Leadership.
 - DNR Wildland Fire Management Division Leadership.
 4. DNR will forward all complaint responses to the people listed in item 2.
 5. DNR Wildland Fire Management Division will follow up on all silvicultural related complaints within 2 business days of receipt to ensure that complainant was contacted and that appropriate actions were taken to:
 - Mitigate the complaint, if warranted.
 - Document any safety hazards on public roads.
 - Document an intrusion of smoke, or
 - Document an exceedance of the NAAQS.
 - Take appropriate enforcement action if warranted.

Visibility Protection

The federal Clean Air Act (CAA) established a national visibility goal to "... prevent any future, and remedy any existing, impairment of visibility in mandatory Class I areas." Washington has eight (8) federal Class I areas that are national parks and wilderness areas.

States must develop strategies to make "reasonable progress" toward meeting the visibility goals in the federal Class I Areas as part of its Regional Haze SIP. Ecology has the primary responsibility for Regional Haze SIP development and submittal to EPA.

One or more burns that consume 100 tons or more of material have the potential to affect visibility significantly over large areas. The cumulative effect of many smaller burns may also have an impact on visibility. The visibility portion of this plan concentrates on burns that consume 100 tons and greater at this writing.

In 1991, the Washington Clean Air Act amendments (RCW 70A.15.1005; Declaration of Public Policies and Purpose) added language describing the legislature's intent to "... preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions of the state." In addition "...Further, it is the intent of this chapter to prevent any areas of the state with acceptable air quality from reaching air contaminant levels that are not protective of human health and the environment..."

The following provisions of this SMP assist with "reasonable progress" to meet national visibility goals for federal Class I Areas:

- Maintain particulate emissions below mandatory emission reductions levels described in this plan and RCW 70A.15.
- Restrict burning during poor air quality days, which are also the days that have generally poor visibility conditions, due to implementation of the mandatory "call-in" requirement before igniting burns of less than 100 tons (less than 300 tons in low risk areas).
- Promote use of alternative methods of debris disposal to reduce the need to burn forest debris.
- Promote use of "pile-burning" best management practices to reduce visible smoke by increasing combustion efficiency through the use of fans, etc. The use of pile-burning techniques will also allow burning to occur outside heavy tourism periods when broadcast burning is not possible, allow burning of large units to be done in smaller sub-units (thereby keeping smoke impacts more localized), and will allow burning during cloudy or low visibility rainy days.

Mandatory Emissions Reduction

The Washington State Clean Air Act (RCW 70A.15) mandated that DNR reduce statewide emissions from silvicultural burning in a two-stepped process, beginning in 1994 and ending in 2000. DNR complied with RCW, and have been successful in keeping silvicultural emissions below the established thresholds. Should emissions start to increase toward the threshold established in 2000, DNR will implement the mandatory emissions allocation system, and reduce non-forest-health related silvicultural operations.

Two of the primary goals of this plan are to protect public health and promote the enjoyment of the natural attractions of the state. Reduction of emissions produced from burning, coupled with the use of alternative methods of debris disposal, will meet these goals by improving general air quality.

Emissions Baseline

Using the baseline of 17,250 tons of PM₁₀ and the best available science, starting with SMS Info and each progressive update of CONSUME, we have maintained a silvicultural emission level consistently below the 2000 target baseline. DNR cross-walked the original target of 17,250 tons of PM₁₀ with the current measurement of PM_{2.5} to equal 15,853 tons, which is the currently accepted measure.

The total emission baseline level was the sum of broadcast/underburn emissions, greater than 100-ton pile burn emissions, and under 100-ton pile burn emissions as described in RCW 70A.15.5130(1b).

The baseline will not be altered, except to reflect additions or subtractions of plan participants, or to incorporate improvements within the techniques and technology used to make the calculation, resulting from new research. Any such alteration will be described in the annual Smoke Management Report for that year.

Emissions Reporting and Tracking

DNR will adhere to the emission reporting and tracking in RCW 70A.15.5130.

Reporting is not required for the following types of burning:

- State and private lands where the burning does not require a written permit ("rule burns" as defined by WAC 332-24-211).
- Federal lands where burning is related to recreation (e.g. campfires) or is a single pile less than 10 feet in diameter.
- Other outdoor burning not covered by this plan, such as agricultural, recreational or on improved land.

Gross Fuel Loading Estimates

The responsibility for estimating the gross fuel loading on each burn site rests with the individual federal Land Manager, tribal designee, or DNR on lands it protects.

Mandatory Emissions Allocation System

The apportionment of burn approvals *may* become necessary if DNR does not meet the emission reduction requirements of the Washington Clean Air Act. The following mandatory system will provide an equitable and understandable method for apportioning emissions if it becomes necessary to activate it.

Mandatory Allocation Plan

The *Washington State Forester* will approve any deviation from this allocation plan and will notify the affected burner groups of the amount and duration of such deviation.

DNR's *Wildland Fire Management Division Manager* is responsible for determining when the allocation system will be activated, and for coordinating or

transferring surplus emission allotments (if any) between burner groups or between DNR Regions. The Wildland Fire Management Division will continuously monitor emission production and periodically inform federal, state, and private burners of their cumulative total emission production and trends.

Once DNR activates the allocation system, the following managers are responsible for prioritizing and limiting which burning will be approved on lands within their jurisdiction to avoid exceeding their emissions allotment: the **Regional Manager** of each DNR Region; the **Forest Supervisor** of the National Forest; the **Park Superintendent** of the National Park; the **Base Commander** of Fort Lewis or other military base where regulated burning occurs; the *Refuge Manager* for U.S. Fish and Wildlife Service lands; the **District Manager** of the Spokane District Office of the U.S. Bureau of Land Management; and the **Tribal Designee** of any participating tribes.

Activation

Activation of the mandatory allocation system will occur only if emission reduction thresholds are not met.

The Wildland Fire Management Division will maintain the data to develop trend curves that describe the most recent five-year average annual burning pattern of each manager and monitor trends as burning progresses throughout a calendar year.

If burning activity appears to be deviating significantly from the most recent five-year trend, the Wildland Fire Management Division will notify each manager. If the total burning remaining to will cause the emissions ceiling to be exceeded, DNR will activate the mandatory emissions allocation system.

The Wildland Fire Management Division will notify each manager directly, and the public through news releases, that we have activated the mandatory allocation system, and inform the managers of the amount of emissions they may produce during the remainder of that calendar year. The managers must then prioritize their burning so that they will not exceed their allocation.

The allocation system will remain in effect until Wildfire Division determines that emissions will not exceed the statewide ceiling, and notifies the managers in writing of its cancellation.

Distribution

DNR will make emission allocations based upon the percentage of average annual emissions produced by each manager during the previous five calendar years. DNR will adjust the emission allocation annually to reflect the most current five-year period. No manager group will be precluded from burning because of an absence of historical burning data. DNR will record their current burning and use it as the basis for future allocations.

Individual managers may petition Wildland Fire Management Division for additional allocation. Such a petition should include a description of the burning to be done and a justification for deviating from the allocation system. The Wildland Fire

Management Division Manager will facilitate a query of the other managers for any surplus emissions that may be available. If none are available and the requesting manager wishes to pursue the request, it will be forwarded to the **Washington State Forester** for approval or denial. If approved, the remaining allocation for the other managers will be reduced proportional to their percentage of total emissions produced.

Nothing in this allocation system guarantees an emissions level to an individual manager. The **Washington State Forester** has the authority to make adjustments.

Emission Reduction Techniques

To maximize the effective use of fire within the emission levels allowed, it is necessary to employ improved burning techniques. The science of predicting the amount of emissions has improved within the last few years thanks to research done by the USFS Pacific Northwest Research Station. Computer models allow burners to analyze proposed burns and prepare burning prescriptions that will produce minimum emissions on each acre to be treated. Various site factors and burning technique scenarios can be tested in the models, and estimates of emissions that each scenario would produce can be calculated. This capability will allow burners to treat maximum acreage with minimum emission production.

When they become available, DNR, in conjunction with the USFS, will distribute copies of these models to burners who want them, and will provide, or arrange for, training in their operation.

Besides total emission reduction, it is an objective of this plan to reduce the amount of visible smoke produced in and around residential areas. DNR encourages burners to use techniques, such as fans, crane piling, mass ignition, accelerated mop-up, exposing mineral soil around stumps, rotting logs, and other 1000-hour fuels, and other methods of increasing combustion efficiency and reducing the smoldering stage of burning. Burning permits will require such practices in areas close to homes or other occupied structures not the property of the burner. DNR will provide information about new burning techniques and equipment as this information becomes available.

Alternatives to Burning

Given the amount of acreage to be treated and the limited emission levels allowed, it is no longer possible to rely solely on burning to achieve silvicultural objectives and hazard abatement. Using alternatives to burning has become not only desirable, but also necessary to meet the expectations of the legislature. Therefore, burners should always investigate alternative methods before choosing to burn.

Washington state law requires that DNR encourage more intense utilization in logging and alternative silviculture practices to reduce the need for burning. In addition, whenever practical, DNR shall encourage burners to develop and use alternative acceptable disposal methods per the following priorities:

- First: Slash production minimization.
- Second: Slash utilization.
- Third: Non-burning disposal.
- Fourth: Silvicultural burning.

These methods shall be evaluated for their relative impact on air, water, and land pollution, public health, and their financial feasibility (RCW 70A.15.5240).

DNR Region Managers must consider the availability and feasibility of burning alternatives during the permit issuance and burn approval process when selecting burns for approval:

- Where there is likelihood that burning in or near residential areas will cause a nuisance.
- When alternatives are available, reasonably economical.
- When the use of the alternative will not cause other unacceptable environmental or human health effects.

As part of its obligation to encourage alternatives to burning, DNR will:

- Gather and distribute information about burning alternatives through participation in interagency and industrial professional organizations and other appropriate forums. Various alternatives are already in use.
- Cooperate with alternative disposal industries by bringing together industrial landowners and disposal industries.
- Consult with local government agencies to determine the availability and cost of legal dumping at approved sites.

It is important to note here that DNR's role in the area of burning alternatives is to facilitate technology transfer, not to initiate new research.

Exceptional Events Demonstration

If a burn contributes to an exceedance of NAAQS, an Exceptional Event demonstration may be prepared to request EPA exclude the monitored exceeding value.

The EPA promulgated the Exceptional Events Rule in 2007 and revised the rule in 2016 to facilitate the exclusion of data that was influenced by an Exceptional Event that might have caused or contributed to an exceedance of NAAQS. EPA defined an Exceptional Event as one that:

- Affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation,
- Was not reasonably controllable or preventable, and
- Was a human activity that is unlikely to recur at a particular location or was a natural event.

The burner and DNR will need to gather the documentation that shows that the burner met permit conditions and followed the smoke management plan.

In order to demonstrate that a silvicultural burning operation that contributed to or caused a NAAQS exceedance qualifies as an Exceptional Event, DNR and the burner must gather detailed demonstration materials and deliver those materials to Ecology as requested. The documentation must include the following detailed information for before, during and after the burn.¹ DNR will use our Smoke Management Burn Portal to ensure that the public is aware of burns that may be ignited in their areas before date of ignition, to inform the public of smoke conditions and outlook during the course of burning, and to alert communities after burn operations are completed. DNR will use social media to direct the public to our burn portal before the burn season is underway, and to alert the public of days when several burns might be ignited close to their communities as the burn season progresses.

DNR manages silvicultural burn permitting, which requires burners to answer several questions about their projects. While burn permits are not identical to burn plans, they contain many of the requirements. Combined with the requirements of this Smoke Management Plan, DNR holds burners to the requirements outlined in federal guidance on the contents of burn plans.

- Before ignition, DNR will:
 - Document all pre burn analysis (Approval Criteria decision documents, spot forecasts, etc.).
 - Evaluate and document likely smoke dispersal conditions.
 - Monitor effects on air quality, state and federal air quality monitoring networks.
 - Consider requiring emission reduction techniques.
 - Prioritize burn in the context of other requests.
- Before Ignition, burn practitioner must:
 - Notify affected public (Appendix 11).
 - Document all pre burn analysis (Approval Criteria decision documents, spot forecasts, etc.).
 - Evaluate and document likely smoke dispersal conditions, including areas that could be affected by smoke.
 - Monitor effects on air quality, using project-specific monitors (if deployed), state and federal air quality monitoring networks.

¹ Adapted from EPA's Exceptional Events Rule revision, [Federal Register Notice of EER](#), 10/3/2016

- During the burn, burn practitioner must:
 - Evaluate smoke dispersion conditions throughout the day
 - Monitor effects on air quality
 - Retain information about weather, burn condition, and smoke dispersal
 - Notify DNR Region, neighbors and those potentially impacted by smoke of any changing conditions.
 - If applicable to the situation, implement emission reduction techniques or use cutoffs to prevent intrusions.
 - Coordinate with other practitioners implementing burns in the area.
- During the burn, DNR will:
 - Evaluate smoke dispersion conditions throughout the day.
 - Monitor effects on air quality.
 - Retain information about weather, burn condition, and smoke dispersal.
- After the burn, DNR will:
 - Evaluate smoke dispersal.
 - Monitor ongoing effects on air quality.
 - Retain documentation (logs, monitor values, etc.) about the event, including weather reports and observations, burn event timeline and smoke development and impacts and submit to Ecology.
- After the burn, the burn practitioner must:
 - Evaluate smoke dispersal
 - Monitor ongoing effects on air quality until fire is out
 - Provide documentation to Ecology

Existing documentation such as burn plans and post-burn reports include the majority of the information Ecology will need for an Exceptional Events Demonstration. Content should include:

- Burn permits
 - Name and contact information for landowner/agent
 - Name, size, and location of burn
 - Forest type
 - Fuel moistures and sizes
 - Slope, elevation, and aspect of unit
 - Tools required on site to extinguish burns for escape and intrusion prevention
 - Proximity of burn location to public
- Burn plans:
 - Predicted PM_{2.5} levels in µg/m³.
 - Planned acres burned.
 - Estimated fuel loading.
 - Estimated emissions.
 - Description of prescription.
 - Actions to minimize fire emissions.

- Approaches to evaluate smoke dispersion.
- Anticipated smoke impacts.
- Public notification and exposure reduction procedures.
- Air quality monitoring.
- Expected SMP actions.
- Post-Burn reports:
 - Actual monitored PM_{2.5} values for project-specific or nearest monitoring network monitor.
 - Actual acres burned.
 - Actual tons of fuel consumed.
 - Actual emissions.
 - Actual meteorological conditions and smoke dispersal.
 - Observed or reported complaints of smoke impacts (include nature, duration, spatial extent and copies of received complaints).
 - Responses to complaints (see Responsibilities section, pages 4-6).
 - Smoke Management decision and any communication taken by DNR or burner relating to provisions of the SMP.

Once Ecology has the burners and DNR's data, Ecology will review materials to assess whether the event meets the Exceptional Event Rule criteria. If Ecology initially determines the event may potentially qualify, Ecology will work with DNR and EPA to develop a demonstration document that presents evidence that the event meets all criteria in the Exceptional Event Rule. Ecology submits demonstrations to EPA; then, EPA evaluates and if they agree, then they can exclude monitored values from compliance determinations in the affected area.

If Ecology cannot provide this information, a case cannot be made for exclusion, and the monitored value stands. If an area violates a standard and an area becomes a nonattainment area (i.e. designated by EPA as violating a federal NAAQS), DNR would severely curtail prescribed burning.

Burners should make every effort to minimize impacts, avoid intrusions and NAAQS exceedances. Should a NAAQS exceedance occur, burners must provide event information to Ecology.

Plan Review, Approval, and Updating

DNR can review any element of this plan on an as-needed basis. Regardless of any changes in the interim, DNR will evaluate this plan every five years. Interested stakeholders (land owners/managers, air quality managers, the public, etc.) will review the effectiveness of the program and DNR will revise the plan or procedures, if necessary. This review will consider air quality impacts, a review of post-burn reports and recommendations for future improvements.

DNR convened the Smoke Management Plan Update Task Force to support and advise the process of developing this plan. It was composed of:

- Washington State Department of Ecology.
- Kittitas Department of Public Health.
- Spokane Regional Clean Air Agency.
- Green Diamond Resource Co., LLC.
- Leavenworth Chamber of Commerce.
- USFS Pacific Northwest Wildland Fire Sciences Lab.
- National Park Service.

The Wildland Fire Management Division Manager will approve procedural changes that are *not* requirements of this plan, as necessary, and distribute those procedural changes to affected plan participants. The Wildland Fire Management Division will approve procedural changes that are requirements of this plan after consultation with the Task Force.

General plan revisions will adopt the same review procedure as used for original adoption.

Glossary

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| Agricultural Burning | The burning of vegetative debris from an agricultural operation necessary for disease or pest control, necessary for crop propagation and/or crop rotation, or where identified as the best management practice by the agricultural burning practices and research task force established in RCW 70A.15.5090 or other authoritative source on agricultural practices. |
| Air Pollution Episode | A period where a forecast, alert, warning, or emergency air pollution stage is declared, as stated in WAC 173-435. |
| Air Turbulence | Rapid fluctuations or changes in vertical motion of air over short distances. |
| Approval Criteria | The eight criteria detailed on pages 9-10 of this document that form the basis for the Go/No-Go Decision, which is applied to any burn that will consume 100 tons or more (300 tons in low risk areas), or a burn of any tonnage in a low risk area. |
| Atmospheric Stability | The resistance of the atmosphere to vertical motion. |
| BLM | United States Department of Interior, Bureau of Land Management. |
| Broadcast Burning | Prescribed burning of debris on a designated unit of land, where the debris has not been piled or windrowed, by allowing fire to spread freely over the entire area. |
| Burn | A prescribed fire. |
| Designated Areas | Critical areas designated by the Department of Ecology that are otherwise subject to air pollution from other sources. |
| DNR | Washington State Department of Natural Resources. |
| DOD | United States Department of Defense. |
| Duff | The accumulation of partially decayed organic material found on the forest floor. Sometimes called a "humus" layer. |
| Ecology | Washington State Department of Ecology. |
| Escape | A condition which exists when a prescribed fire leaves the area where it was intended to remain. |
| Extreme Hazard | Particular hazardous forest fuel conditions as defined in WAC 332-24-650 and 332-24-652. |
| Federal Class I Areas | All international parks, national wilderness areas, and memorial parks larger than 5,000 acres, and all national parks larger than 6,000 acres (42 USC 7470). |

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| Fire Dependent Ecosystem | Systems possessing organisms that require fire for their survival and continuance, with fire an essential part of the environment. The plant species that dominate are not only adapted to fire but possess fire-dependent structures, mechanisms, and functions. Where fire often serves as the driving source of life cycles. |
| Forest Land | Any unimproved lands that have enough trees, standing or down, to constitute in the judgment of DNR, a fire menace to life or property. Sagebrush and grass areas east of the summit of the Cascade Mountains may be considered forest lands when such areas are next to or intermingled with, areas supporting tree growth. |
| F&WS | United States Department of Interior, Fish and Wildlife Service. |
| Go/No-Go Decision | The decision issued by DNR's Smoke Management experts to either approve or deny an ignition of 100 tons or more of consumable material (300 tons in low risk areas) or a burn of any tonnage in an Urban Growth Area. |
| Impaired Air | A condition declared by the Ecology or a local air pollution authority where meteorological conditions are conducive to an accumulation of air contamination with PM ₁₀ and carbon monoxide at specified levels, and which threatens to exceed other limits established by Ecology or an air authority. |
| Intrusion (Smoke Intrusion) | The intrusion of visible smoke into a designated area at an altitude less than 2,000 feet above ground level. |
| Inversion | A layer of air in which the temperature increases with height. The effect of various types of inversions is to greatly retard the dispersal of smoke. |
| Landings | An area on a logging operation where logs that are taken from the forest are assembled, trimmed, limbed, and loaded for shipment. |
| Land Manager | The official responsible for ensuring that the requirements and operating procedures of this plan are met as they apply to burning on lands under their control: They include the DNR Region Manager, the Forest Supervisor for the USFS, the Park Superintendent for the NPS, the Refuge Manager for the F&WS, the District Manager for the BLM, and the Base Commander for the Military Base. |
| Large Burns | A large burn is a fire that will consume greater than or equal to 100 tons (300 tons in low risk areas). |
| Low Risk Areas | Remote areas where most pile burning represents little risk of causing smoke impacts to the public. Low risk areas have a higher threshold for burns requiring smoke management approval than other areas. |
| Mass Ignition | The rapid or simultaneous ignition of materials on a particular burn site. |
| Mixing Heights | A term used to describe the potential for vertical mixing. It defines the height above the surface through which relatively vigorous mixing will take place in the vertical due to convection. |
| Mop-Up | Action taken to completely extinguish a fire. |

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| Multiple Day Burns | A prescribed fire of any size that cannot be managed so that the smoke will be fully dispersed by noon on the day after the first ignition of the burn area. Burns that the burner chooses to ignite over several days, but could reasonably be burned in one day or managed on a day by day basis will not be considered multiple day burns. Large pile burns burned over a period of days are not multiple day burns because ignition can be stopped and the piles mopped up, if needed. |
| NFDRS | National Fire Danger Rating System. |
| Non-Attainment Area | A clearly delineated geographic area that has been designated by the Environmental Protection Agency and promulgated as exceeding a national ambient air quality standard or standards for one or more of the criteria pollutants, which includes carbon monoxide, particulate matter (PM ₁₀ or PM _{2.5}), sulfur dioxide, ozone, and nitrogen dioxide. |
| NPS | United States Department of Interior, National Park Service. |
| Nuisance Smoke | Emissions from any open fire cause physical discomfort or health problems to people residing in the vicinity of the burning or physical damage to property. |
| Outdoor Burning | All forms of burning in an open fire or outdoor container <i>except</i> agricultural and silvicultural burning. Further definition can be found in WAC 173-425-020. |
| Over-Flight of Smoke | When a visible smoke column can be seen above a particular area, and is greater than 2,000 feet above ground level. |
| Pile Burning | Burning material in piles as opposed to other configurations. |
| PM-10 | Particulate material with an aerodynamic diameter of 10 microns or less. |
| Prescribed Burning | Controlled application of fire to wildland fuels in either their natural or modified state under specific environmental conditions which allow the fire to be confined to a predetermined area, and at the same time to produce the fire line intensity and rate of spread required to attain planned management objectives. |
| Prescribed Natural Fire | Burns ignited by natural means, i.e., lightning, which are permitted to burn under specific environmental conditions, in preplanned locations, with adequate fire management personnel and equipment available to achieve defined objectives. Prescribed natural burns are used for maintaining natural conditions and ecological processes in native ecosystems. |
| Range Lands | Wildlands that do not meet the definition of forest lands. |
| Rule Burn | A specific type of small fire that doesn't require a written burning permit, but is subject to the rules listed in WAC 332-24-205 and WAC 332-24-211. |

| | |
|---------------------------|---|
| SIP | State Implementation Plan to meet the requirements and objectives of the United States Clean Air Act. |
| Silviculture | Management practices related to controlling, establishment, growth, composition, and quality of forest vegetation. |
| Small Burn | A small burn is a fire that will consume less than 100 tons (300 tons in low risk areas) in a 24 hour period. |
| Smoke Dispersion | Those processes within the atmosphere which mix and transport smoke away from the source. This depends on three atmospheric characteristics: atmospheric stability, mixing height, and transport winds. |
| Suppression Forces | Persons and equipment necessary to contain a prescribed or wildfire. |
| Transport Winds | The wind speed and direction at the final height of smoke plume rise. |
| USFS | United States Department of Agriculture, Forest Service. |
| Under Burning | Prescribed burning with low fire intensities under a timber canopy. |
| Unimproved Land | Land that is <i>not</i> cleared, pasture, or cultivated, that does <i>not</i> contain structures and accompanying yard, and that contains flammable material. |
| Urban Growth Area | Areas within which urban growth shall be encouraged and outside of which growth can occur only if it is not urban in nature. |
| Visible Smoke | Smoke that is slightly visible but has a minimum impact on air quality or overall visibility. |
| WAC | Washington Administrative Code. |
| Wildfire | Any fire occurring on wildlands that is not meeting management objectives and thus requires a suppression response. |

APPENDIX 1: Burn Submittal and Approval Procedures for Burns 100 Tons or Greater, and any Burn in an Urban Growth Area

The following procedures apply to burning 100 tons of material or greater (300 tons in low risk areas) and burning in an UGA (regardless of size) at a single burn site/permit site during a 24-hour period:

I. Lands Protected by DNR

A. Burn Request

The burner is responsible for entering a burn request into the smoke management reporting system. If the burner does not have access to the system the Region is responsible for gathering and entering the burn request information into the system (see Appendix 2). For the request to be considered the day before burn requests must be entered into the system by 12:00 p.m. the day before the burn.

B. Smoke Management Section Go/No-Go Decision

Smoke Management Section queries the smoke management reporting system for all burns proposed for the next day by 1:00 p.m.

Smoke Management contacts the Region for update/clarification of burn site conditions by 2:00 p.m., if necessary.

Smoke Management Section documents Go/No-Go Decision within the smoke management reporting system no later than 4:00 p.m., which is then forwarded to the geographically appropriate Region for final approval by the Region Manager. Regions verify local conditions for smoke dispersal, fire danger and resource availability when making the final decision on a burn. Regions final approvals will be documented in the system, and burner notified by 4:30 p.m. the day before the burn.

C. Day of the burn

If the burn was approved, the Smoke Management Section will verify weather conditions have not changed so much as to result in a violation of the Approval Criteria, by 7:30 a.m. If weather conditions have unexpectedly changed burners and regions will be notified and advised that they may have to extinguish, and therefore are advised to not burn that location.

D. Post Burn Data Gathering

The burner is responsible for entering post burn data into the smoke management reporting system. If the burner does not have access to the system the Region is responsible for entering the information into the system (see Appendix 2) within five business days after ignition.

II. Federal and Participating Tribal Lands

A. Burn Request

The Land Manager is responsible for pre-screening, prioritizing and entering the burn request (see Appendix 2) into the smoke management reporting system.

B. Smoke Management Section Go/No-Go

The Smoke Management Section queries the smoke management reporting system for all burns proposed for the next day by 1:00 p.m. Smoke Management documents burn decisions (Go/No-Go) within the smoke management reporting system by 4:30 p.m. Land Managers are then responsible to verify local conditions for smoke dispersal, fire danger and resource availability when making the final decision whether or not to burn.

C. Day of the Burn

If the burn was approved, the Smoke Management Section will verify weather conditions have not changed so much as to result in a violation of the Approval Criteria, by 7:30 a.m. If weather conditions have unexpectedly changed burners will be notified and advised that they may have to extinguish, and therefore are advised to not burn that location.

D. After the Burn

The Land Manager gathers post-burn information and transmits it to the Smoke Management section within five business days of the day burning was proposed, according to the procedure listed in Appendix 2. A courtesy reminder to enter data will be sent at 15 days and DNR will assume full requested tonnage was burned at 30 days and invoice accordingly.

APPENDIX 2: Data Reporting Procedures

The Washington Clean Air Act required that reductions to emissions from silvicultural burning be reduced from the 1994 background levels. To ensure that authorized emissions levels are not exceeded, data must be collected so that emissions can be calculated and recorded.

I. Data Collection Required

Data is required to be gathered for all burning for which a written permit has been issued by DNR and all federal burning on forest land except:

- Prescribed Natural Fire.
- Wildfires.
- Recreation Fires and single piles that meet the requirements of WAC 332-24-211 that are to be ignited in a 24-hour period as specified by agency/tribal rules.

II. Data Retention

The DNR smoke management reporting system stores, burn applications, permits, requests and post burn data however each entity is responsible for ensuring the following data is collected and preserved:

DNR Regions: Pre-burn data, including acreage, estimated tonnage, fuel types, project location, and a map of the silvicultural burn location.

DNR Wildland Fire Management Division: Data used to inform a smoke management decision and the final approval/disapproval, including any recommendations or addenda.

Burners: Test burn results, prevailing winds, relative humidity, and other day-of-burn conditions (i.e., burn boss logs). Photograph smoke plume every two hours after ignition until operation cease.

III. Timeliness of Data Input

Post Burn Data must be entered within five business days of ignition for burns 100 tons or greater (or 300 tons in low risk areas) on State and private lands, and all federal burns.

APPENDIX 3: Burning Permit Issuance, State and Private Lands

The following procedures apply only where the DNR issue written burning permits on Department-protected lands. These procedures may be modified at any time by the Wildland Fire Management Division Manager.

I. General Operating Instructions

- A. An application is filled in in the Smoke Management Reporting System, signed and paid for electronically. If the applicant does not have access or chooses not to pay electronically they may pay at the Region office, in person or by mail. DNR staff may collect fees in the exact amount by check or money order payable to the Department of Natural Resources.
- B. Once payment is received electronically, by mail or delivered in person, NO REFUNDS will be issued unless the Region determines that the proposed burning will not be permitted.
- C. The fee schedule listed in WAC 332-24-221 will be used to determine the fee amount of each permit.
- D. Applicants requesting multiple burning permits within a DNR region when the total tonnage of all permits equals or exceeds 100 tons may:
Request a permit fee based on the total calculated tonnage of all burning permit applications when said applications are completed and submitted as one packet. Additional burning permit applications submitted later will require a new permit fee.
- E. Permits issued for burning piled material accumulated from ten acres or less are assumed to have a consumable tonnage of thirty (30). This is expected to provide an accurate accounting of emissions for this size group of burns based on the average tonnage per permit issued for <100 tons during the four-year period 2006-2010.
- F. Non-federal agency burners are required to get burn-day approval from the Region before igniting their burns.
- G. Upon receiving a permit application for burning within a UGA that appears to be permissible the permitting forester will notify the air agency with jurisdiction and give reasonable time to consult on the application.

For burns that will consume less than 100 tons in a 24-hour period (300 tons in low risk areas), burners must obtain and follow the instructions for the area and day of their proposed burn available on the DNR web site or by calling 1-800-323-BURN. Permit conditions may be used to require other burn-day approval requirements.

For burns that will consume 100 tons or greater in a 24-hour period (300 tons in low risk areas), or are in a UGA, a request must be submitted through the Smoke Management Reporting System (if burners do not have access they can work with the Region to enter required information).

Failure to follow the "call-in" instructions or "large burn/UGA" approval process will be a violation of the conditions of an approved permit and be subject to enforcement action.

- H. Separate permits are required for each individual burn site. The single exception allows multiple "landings" to be burned by a single landowner, on that landowner's ownership located within an individual Township (variation from this directive will be considered on a case-by-case basis). Individual piles away from loading areas are not considered landings.
- I. If burning restrictions occur due to fire danger or smoke management concerns, burning permits will be suspended, not revoked or cancelled. No new permit will be required after the suspension is lifted, but no extension of time on the expiration date will be added. No new fees will be charged.
- J. All permits must be signed by an authorized department employee designated by the Region Manager.

II. Field Operating Instructions

A. General Instructions

The DNR Region Staff will:

1. Write burning permits for a term of:
 - a. One year for permits that will consume less than 100 tons (300 tons in low risk areas), and
 - b. Two years for permits that will consume 100 tons or greater (300 tons in low risk areas)

The permit term will commence on the date the permit is validated. Permits are validated after payment is received and DNR has signed the permit. Burning conducted under the permit is only allowed after the permit has been validated by DNR and signed by both DNR and applicant.

2. Review information provided in the burning permit application to determine if the permit can be properly conditioned without a field inspection.
 - a. If the permit is to be written without inspection, the field administrator will confirm that payment has been received; complete, sign, and validate the permit; ensure the permit is distributed to the applicant; and direct the applicant to sign the permit. Burning is authorized upon signature of permit by applicant. Scanned signatures by DNR and/or applicant are

acceptable. For DNR records, only DNR signed and validated copy of the permit is required.

OR

- b. If the permit is to be written with an inspection, schedule an inspection. The fee may be collected and the permit validated on site by the field administrator, and the permittee may start to burn immediately, contingent on permit conditions being met.
3. Condition permits to account for variable burning conditions throughout the permit period and to provide a reasonable assurance that escapes and/or smoke intrusions will not occur. Conditioning must have a high emphasis on air quality protection.
 4. Condition permits in UGAs with:
 - a. Information resulting from the collaboration with the air agency with jurisdiction;
 - b. All UGA burns must have a smoke management decision at division and region regardless of tonnage;
 - c. Burner must contact the air agency with jurisdiction prior to ignition;
 - d. For every day of new ignition or before lighting a detached unit on the same permit, a test fire shall be conducted; and
 - e. A spot weather forecast from a qualified meteorologist must be received prior to ignition for each day the burning may occur.
 5. Not approve permit if fire danger concerns, air quality protection, and other considerations found in WAC 332-24-217 have not been or cannot be adequately addressed and implemented through appropriate permit conditioning.
 6. Not issue any permits within air quality non-attainment areas or maintenance areas designated by the US EPA as exceeding any NAAQS.
 7. Use the current burning permit form for all burning permits.
 8. Enforce all burning permit conditions and other burning requirements in accordance with burning permits, the Smoke Management Plan, 332-24 WAC and RCW 76.04.205.
 9. Inform the burner that failure to comply with rules in Chapter 332-24 WAC and the Smoke Management Plan voids permission to burn. Any person burning without complying with Chapter 332-24 WAC is in violation of RCW 76.04.205 and Chapter 70A.15 RCW. Convictions or bail forfeitures in connection with illegal burning under Chapter 332-24 WAC may result in refusal to issue further permits for a two-year period from the date of the illegal burning. The decision to refuse issuing any further permits rests with the Region.
 10. Account for burning permits by implementing the following permit numbering format "RRYYYY####" where:
 - a. RR represents a two letter region identifier:
 - NE = Northeast Region
 - NW = Northwest Region
 - OL = Olympic Region
 - PC = Pacific Cascade Region
 - SE = Southeast Region

SP = South Puget Sound Region

- b. YYYY represents the calendar year the permit is validated (e.g. 2012).
- c. #### represents an annual block of numbers (0001-9999) for each region.

Example: When Northeast Region uses number 45 from the block of annual numbers for calendar year 2012, the permit number would be NE20120045.

On-Site Inspections

11. Based on the information provided in the burn permit application, priority for on-site inspections should be for permits that:
 - a. Meet Extreme Hazard criteria as defined in WAC 332-24-650, or
 - b. The Field Administrator has significant reason to suspect fire danger and/or smoke intrusion concerns for the area of the proposed burn, that permit conditioning cannot be determined without a site visit.
12. Condition the permit to the extent possible to prevent escape and to abate extreme hazards.
13. Condition the permit to mitigate fire danger and/or smoke intrusion concerns. Deny the permit request if conditions cannot be mitigated.
14. If the field administrator elects to issue and validate the permit at the time of the site visit, ensure both landowner and DNR sign the completed permit and initial any scratch outs or corrections. Use ink for all handwritten permits and/or permit corrections.
15. If paying in person, collect the check or money order (if fee has not already been collected), write the check number and permit number on the permit, and validate the permit.
16. Leave one copy of the validated permit with permittee.
17. Contact the Region office and relay permit information to dispatch to enter information into the Smoke Management Reporting System.
18. Complete the burn permit log, staple any fees collected to the office copy, and mail or deliver to the Region office on the same day the permit was validated.
19. Complete the permit tracking log.

Permits Written Off-Site

20. Review burn permit application and permit fee payment. Follow-up correspondence with the applicant to clarify application information as needed. If application is not approved, notify applicant including reason(s). Incomplete applications should be sent back to the applicant for further input otherwise and should not be approved as incomplete.
21. Complete, sign, and validate the conditioned permit and provide the permit to the applicant for signature. Direct applicant to sign the permit. Burning is authorized upon signature of permit by applicant. Scanned signatures by DNR and/or applicant are acceptable. For DNR records, only the DNR signed and validated copy of the permit is required.

22. Make follow-up contact to notify the permittee of permit revocation/suspension, if required.

III. Regional Office Operating Instructions

General Duties

The Regional office staff will:

- A. Receive requests for burning permits from the public. For requests that require a written permit, provide direction on how to obtain and submit a burn permit application. Applications are available on the DNR website. Regions can make applications available at the Regional Office or for mailing to applicants.
- B. Receive burning permit applications and fees from applicants.
- C. Forward burning permit applications to field administrator for application review OR receive the signed and validated burning permit copies from the field administrator for permits issued during a site visit.
- D. Review the burning permit package for completeness and ensure that the correct payment amount has been received.
- E. Consult with the field administrator who signed the burning permit if any irregularities are noticed or information is missing. Arrange for the errors or omissions to be corrected.
- F. Follow Region procedures to decide if too much time has passed between the field administrator's site visit and/or permit issue date and the date received in the Region office for permit validation processing.
- G. Ensure permit applications are entered into the smoke management reporting system or develop a filing system to store burning permit applications, validated burning permits, and to track multiple permits covered under one fee payment per agency record retention requirements if the current smoke management reporting system is not capable of maintaining those files.
- H. Process fees collected using appropriate Department procedures.
- I. Reconcile validated permits with permit log and payments received.
- J. Notify field administrator and permittee that the permit is suspended if permit fee cannot be collected/processed (e.g. bad check).
- K. Ensure the burning permit data system is maintained with accurate and timely data entry.
- L. Ensure the 1-800-323-BURN phone system and webpage have accurate and up to date information.

APPENDIX 4: Smoke Intrusion Reporting and Complaint Processing Procedures

The procedures and forms in this Appendix may be modified at any time by the Wildland Fire Management Division Manager.

I. Receiving and Processing Complaints

DNR Regions

1. DNR Regions will notify the appropriate Wildland Fire Management, Communications and Outreach, and Region or Federal Land Manager (FLM) immediately upon receiving smoke complaints.
2. If the smoke might impact the public in a neighboring Region or FLM, the source Region will immediately notify the appropriate Region or Federal Land Manager, Wildland Fire Management Division, and Communications and Outreach of the situation.
3. All smoke complaints will be forwarded to source Region for documentation, investigation, enforcement and other appropriate response.

Federal Land Manager (FLM)

1. FLM will notify Wildland Fire Management Division immediately upon receiving smoke complaints.
2. All smoke complaints will be forwarded to the source FLM for documentation, investigation, enforcement and other appropriate response.

Wildland Fire Management Division

1. Smoke complaints received from the public will be forwarded to the source Region or FLM for documentation and appropriate response.

II. Smoke Intrusion Report

Smoke intrusion reports must be submitted by the Region Manager or FLM for all smoke intrusions when the 3-hour rolling concentration average exceeds the current Washington State 24-hour average concentration for protecting sensitive individuals from fine particulate matter. As of 2021 this value is 20.5 $\mu\text{g}/\text{m}^3$ for $\text{PM}_{2.5}$ or, for any area when the Wildland Fire Management Division Manager, DNR Region Manager or FLM determines the smoke impact on the public warrants submission of the reports.

The DNR Burn Portal has the Preliminary Report Form which DNR requests back from the DNR authorized burner within 24hrs, this preliminary report is to notify

DNR leadership of the possibility of an intrusion. If it appears a DNR authorized burn caused an intrusion, DNR requires a Comprehensive Intrusion Report, also found on the DNR Burn Portal. This report requests detailed information from the burner including burn logs, photos, lists of complaints, and the required post burn report. The DNR smoke expert adds data about ventilation, visibility, mixing depth, transport wind and windshear, plus general synoptic conditions (large and small), and addresses whether forecasts were adequate and why to the report. Together DNR smoke experts and the burner collaborate on suggested changes in procedures and techniques necessary to prevent future intrusions under similar conditions. This report must be finalized within five days of the intrusion occurring and is provided to DNR leadership and retained in accordance with state records retention. DNR may request an after action review, including root-cause analysis, so that practices can be adjusted and knowledge shared.

PRELIMINARY REPORT OF SMOKE INTRUSION

Washington Department of Natural Resources

| | | | |
|--|------------------------------------|---|-------------------|
| Intrusion Date: | Time/Date of Ignition: | Time/Date Intrusion was Detected: | Intrusion Number: |
| Initial Info Source: | | | |
| Area Being Affected: | | | |
| Preliminary Cause of the Intrusion: | | Type of Burn: | |
| | | <input type="checkbox"/> Slash <input type="checkbox"/> Natural (Understory) <input type="checkbox"/> Broadcast | |
| Location of Unit(s) that may be Causing the Intrusion (specify lat/long, TSR, or physical address): | | | |
| Landowner: | Unit Name(s) and Permit Number(s): | Unit Size (tons): | |
| Population(s) Affected: | | | |
| Nearest Monitor(s) Affected: | | | |
| Estimated level of impact: <input type="checkbox"/> light <input type="checkbox"/> moderate <input type="checkbox"/> heavy | | | |
| Comments: | | | |
| | | | |
| Distribution list (Area, District/Forest): | | | |
| | | | |

A follow-up report will be distributed as significant additional information becomes available. This report will include but is not limited to: detailed intrusion form, burner log, photos, and post burn report. It is the responsibility of the preparer to ensure all documents are included in final report.

Prepared By/Date: _____



SMOKE INTRUSION/IMPACT REPORT

A. SMOKE ORIGIN:

Table with 10 columns: Unit Name, District Forest, Legal Description, Owner Class, Elevation, Acres, Tons, Ignition Start Time, Ignition End Time, Date Burned

B. IMPACT DESCRIPTION

- 1. Area Affected
2. Date Time Smoke Entered the Area Duration
3. Type: [] Main Plume [] Drift Smoke [] Residual Smoke
4. Describe Smoke Behavior (including distances and elevations of base of plume)
5. Cause of Intrusion/Incident:
6. Public Complaints Received (# and description):
7. Evaluate the observed smoke plume by completing the following:
A. Describe the trajectory of the smoke in terms of altitude above ground level (agl) and geography (e.g. smoke rose in column to 2,200' agl, then bent over towards town "A", crossed I-5 on the ground, passing through town "B" and dispersed into the Cascades).
B. If the smoke did not rise in a column to 3,000' agl, explain why.
8. What changes in procedures/techniques are necessary to prevent a future intrusion under similar conditions?

Sections A-F of this form should be completed and sent to DNR Wildfire Division Smoke Management no later than 5 days after the intrusion has occurred. The burner's log, photos, a detailed list of any complaints, and the post burn report should be attached to this comprehensive intrusion report. DNR will fill in Sections H-M and return the form for signature. An after action review may be requested by Division staff.



C. FORECAST AND INSTRUCTIONS

1. Observed transport direction and speed at ignition time and for next 12 hours: _____
2. Forecast surface wind direction and speed at ignition time and for next 12 hours (24 hours if residual smoke was a factor): _____
3. Observed surface wind direction and speed at ignition time and for next 12 (24) hours: _____

4. Describe significant changes in transport or surface wind conditions: _____
Were these changes forecasted _____
5. Describe general weather conditions observed during the burn period and for the next 6 hours (sky conditions, type and height of clouds, precipitation, stability indicators etc.)

6. If observed weather was different from the forecast, was NWS or DNR consulted? _____
7. What were Smoke Management Instructions? (Include written and/or verbal) _____

D. FUEL MOISTURES AT IGNITION TIME

1 hour _____ 10 hours _____ 100 hours _____ 1,000 hours _____

E. OTHER VISIBILITY RESTRICTING SOURCES PRESENT:

Field Smoke [] Resident Emissions [] Ag Smoke [] Dust []
Other prescribed fire smoke (source) _____ Other: _____
Wildfire smoke (fire's name) _____ Unable to identify _____

F. COMMENTS _____

Sections A-F of this form should be completed and sent to DNR Wildfire Division Smoke Management no later than 5 days after the intrusion has occurred. The burner's log, photos, a detailed list of any complaints, and the post burn report should be attached to this comprehensive intrusion report. DNR will fill in Sections H-M and return the form for signature. An after action review may be requested by Division staff.



SECTION H THROUGH M TO BE COMPLETED BY DIVISION FORECASTER:

DNR forecast ventilation at time of ignition and for next 12 hours: _____

H. IMPACT INTENSITY

1. Average visibility for 3 hours prior to start of impact _____. (If available)
2. Lowest prevailing visibility during duration of impact _____. (If available)
3. Average Area of Concern nephelometer/other monitor (purple air) for 3 hours prior to start of impact _____.
4. Highest nephelometer reading during duration of impact _____.
5. Classification based on visibility or nephelometer:
 Light Moderate Heavy Measured Estimated Complaint
 Unknown or can't determine No classification due to other sources

If moderate or heavy, the number of hours in those categories: Moderate: _____ Heavy: _____

I. OBSERVED MIXING DEPTH, TRANSPORT WIND AND WINDSHEAR AT NEAREST UPPER AIR SITE

J. GENERAL SYNOPTIC CONDITIONS, BOTH LARGE AND SMALL SCALE (Be as specific as possible with feature location. Include surface and upper air map type):

K. WERE FORECASTS ADEQUATE (Yes No) Why _____

L. WERE INSTRUCTIONS ADEQUATE (Yes No) Why _____

M. COMMENTS _____

District/Forest Representative/Date

Smoke Management Forecaster/Date

Intrusion/Incident No.

Sections A-F of this form should be completed and sent to DNR Wildfire Division Smoke Management no later than 5 days after the intrusion has occurred. The burner's log, photos, a detailed list of any complaints, and the post burn report should be attached to this comprehensive intrusion report. DNR will fill in Sections H-M and return the form for signature. An after action review may be requested by Division staff.

APPENDIX 5: Burning Permit Phone System, Procedures and Responsibilities

The purpose of the 1-800-323-BURN system is to provide the Department with a tool to start or stop all burning on Department-protection included in this plan. This includes "rule" burning (except in campgrounds) and "permitted" burning. The system will satisfy the requirement to "call the Department prior to igniting any fire" found in WAC 332-24-205 (6) unless DNR permit conditions require additional notification. In addition the Burn Risk website has the same information for each Fire Danger Rating Area (FDRA), or county. The following discussion describes the tasks and procedures necessary to operate the system. Regions will enter the daily messages into the system.

I. Region Responsibility

Determine a "script" for their region burning information message with the following information by 1630 hours daily:

- A. Determine, by FDRA or county, whether burning will be allowed or not for fire danger or air quality reasons during the next 24 hour period. Where Region boundaries overlap FDRA or county lines, those Regions must decide which one will make the determinations for that county.
- B. Provide for internal quality control checks of the daily message. If the Region has a problem that cannot be resolved in the region, notify the Smoke Management Section to assist with resolution.
- C. If burning will be allowed in some FDRA or counties determine the "adjective class" (fire danger level), daily. The system will update upon completion of data entry so the "adjective class" will be shown on the Burn Risk webpage and recorded on the 1-800 phone line at that time.
The determination of "adjective class" is necessary so that the public knows on any given day which set of burn permit conditions apply (if their permit is conditioned by "adjective class") for their location. It also serves to provide the public with general fire danger status.
- D. Subscribe to and monitor Ecology's listserv for notification of impaired air quality or air pollution episodes. Include air quality burn bans issued by Ecology or a clean air agency in the daily script.
- E. Using the developed script, enter the daily prevention messages and the appropriate adjective classes and "burn" or "no burn" messages into the system by 1700 daily.
- F. Monitor the completed daily message for your Region, and be sure that the information is transmitted to the field administrators daily.

II. Wildland Fire Management Responsibility

- A. Maintain the system with vendors.
- B. Monitor the system messages weekly.

APPENDIX 6: National Ambient Air Quality Standards

| Pollutant | | Primary/ Secondary | Averaging Time | Level | Form |
|-------------------------------------|-------------------|-----------------------|-------------------------|------------------------|---|
| Carbon Monoxide (CO) | | primary | 8 hours | 9 ppm | Not to be exceeded more than once per year |
| | | | 1 hour | 35 ppm | |
| Lead (Pb) | | primary and secondary | Rolling 3 month average | 0.15 µg/m ³ | Not to be exceeded |
| Nitrogen Dioxide (NO ₂) | | primary | 1 hour | 100 ppb | 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | primary and secondary | 1 year | 53 ppb | Annual Mean |
| Ozone (O ₃) | | primary and secondary | 8 hours | 0.070 ppm | Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years |
| Particulate Matter (PM) | PM _{2.5} | primary | 1 year | 12.0 µg/m ³ | annual mean, averaged over 3 years |
| | | secondary | 1 year | 15.0 µg/m ³ | annual mean, averaged over 3 years |
| | | primary and secondary | 24 hours | 35 µg/m ³ | 98th percentile, averaged over 3 years |
| | PM ₁₀ | primary and secondary | 24 hours | 150 µg/m ³ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide (SO ₂) | | primary | 1 hour | 75 ppb | 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | secondary | 3 hours | 0.5 ppm | Not to be exceeded more than once per year |

APPENDIX 7: Laws, Rules and Authorities

Code of Federal Regulations (CFR)

42 USC 7418-Establishes that federal agencies must adhere to state air quality laws, rules, and regulations

(a) GENERAL COMPLIANCE

Each *department, agency*, and instrumentality of the executive, legislative, and judicial branches of the Federal Government (1) having jurisdiction over any property or *facility*, or (2) engaged in any activity resulting, or which may result, in the discharge of *air pollutants*, and each officer, agent, or *employee* thereof, shall be subject to, and comply with, all Federal, *State*, interstate, and local requirements, administrative authority, and process and sanctions respecting the control and abatement of air pollution in the same manner, and to the same extent as any nongovernmental entity. The preceding sentence shall apply (A) to any requirement whether substantive or procedural (including any recordkeeping or reporting requirement, any requirement respecting permits and any other requirement whatsoever), (B) to any requirement to pay a fee or charge imposed by any *State* or local *agency* to defray the *costs* of its air pollution regulatory *program*, (C) to the exercise of any Federal, *State*, or local administrative authority, and (D) to any process and sanction, whether enforced in Federal, *State*, or local courts, or in any other manner. This subsection shall apply notwithstanding any immunity of such agencies, officers, agents, or *employees* under any law or rule of law. No officer, agent, or *employee* of the United *States* shall be personally liable for any civil penalty for which he is not otherwise liable.

42 USC 7470-Establishes visibility protections in Class I Federal Areas.

The purposes of this part are as follows:

- (1) To protect public health and welfare from any actual or potential adverse effect which in the *Administrator's* judgment may reasonably be anticipate [1] to occur from air pollution or from exposures to pollutants in other media, which pollutants originate as emissions to the ambient air) [2], notwithstanding attainment and maintenance of all national ambient air quality standards;
- (2) To preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value;
- (3) To insure that economic growth will occur in a manner consistent with the preservation of existing clean air *resources*;
- (4) To assure that emissions from any source in any *State* will not interfere with any portion of the *applicable implementation plan* to prevent significant deterioration of air quality for any other *State*; and
- (5) To assure that any decision to permit increased air pollution in any area to which this section applies is made only after careful evaluation of all the consequences of such a decision and after adequate procedural opportunities for informed public participation in the decision making process.

Revised Code of Washington (RCW)

RCW 52.12.103-Burning permits—Issuance—Contents.

Burning permits may be issued upon request, by the persons authorized by the commissioners when the issuing officer deems it appropriate. The permit shall designate the premises and the exact location where the fire may be started and permitted, the nature of the material to be burned, the time limit of the permit, and may contain any special requirements and conditions pertaining to the fire and the control of the fire as the issuing officer deems appropriate.

RCW 52.12.104-Burning permits—Duties of permittee.

The permittee shall comply with the terms and conditions of the permit, and shall maintain a responsible person in charge of the fire at all times who shall maintain the fire under control, not permit it to spread to other property or structures, and extinguish the fire when the authorized burning is completed or when directed by district personnel. The possession of a permit shall not relieve the permittee from liability for damages resulting from the fire for which the permittee may otherwise be liable.

RCW 76.04: Forest Protection Laws

RCW 76.04.005- Definitions.

- (1) "Additional fire hazard" means a condition existing on any land in the state:
- (a) Covered wholly or in part by forest debris which is likely to further the spread of fire and thereby endanger life or property; or
 - (b) When, due to the effects of disturbance agents, broken, down, dead, or dying trees exist on forestland in sufficient quantity to be likely to further the spread of fire within areas covered by a forest health hazard warning or order issued by the commissioner of public lands under RCW 76.06.180. The term "additional fire hazard" does not include green trees or snags left standing in upland or riparian areas under
- ...
- (5) "Department protected lands" means all lands subject to the forest protection assessment under RCW 76.04.610 or covered under contract or agreement pursuant to RCW 76.04.135 by the department.
- ...
- (9) "Forest debris" includes forest slash, chips, and any other vegetative residue resulting from activities on forestland.
- ...
- (11) "Forestland" means any unimproved lands which have enough trees, standing or down, or flammable material, to constitute in the judgment of the department, a fire menace to life or property. Sagebrush and grass areas east of the summit of the Cascade mountains may be considered forestlands

- when such areas are adjacent to or intermingled with areas supporting tree growth. Forestland, for protection purposes, does not include structures.
- (12) "Forestland owner," "owner of forestland," "landowner," or "owner" means the owner or the person in possession of any public or private forestland.
- (13) "Forest material" means forest slash, chips, timber, standing or down, or other vegetation.
- ...
- (15) "Landowner operation" means every activity, and supporting activities, of a forestland owner and the landowner's agents, employees, or independent contractors or permittees in the management and use of forestland subject to the forest protection assessment under RCW 76.04.610 for the primary benefit of the owner. The term includes, but is not limited to, the growing and harvesting of forest products, the development of transportation systems, the utilization of minerals or other natural resources, and the clearing of land. The term does not include recreational and/or residential activities not associated with these enumerated activities.
- ...
- (18) "Participating landowner" means an owner of forestland whose land is subject to the forest protection assessment under RCW 76.04.610.
- ...
- (20) "Slash" means organic forest debris such as tree tops, limbs, brush, and other dead flammable material remaining on forestland as a result of a landowner operation.
- (21) "Slash burning" means the planned and controlled burning of forest debris on forestlands by broadcast burning, underburning, pile burning, or other means, for the purposes of silviculture, hazard abatement, or reduction and prevention or elimination of a fire hazard.
- ...
- (23) "Unimproved lands" means those lands that will support grass, brush and tree growth, or other flammable material when such lands are not cleared or cultivated and, in the opinion of the department, are a fire menace to life and property.

RCW 76.04.165-Legislative declaration—Forest protection zones.

- (1) The legislature finds and declares that forestlands within the state are increasingly being used for residential purposes; that the risk to life and property is increasing from forest fires which may destroy developed property; that, based on the primary missions for the respective fire control agencies established in this chapter, adjustment of the geographic areas of responsibility has not kept pace with the increasing use of forestlands for residential purposes; and that the department should work with the state's other fire control agencies to define geographic areas of responsibility that are more consistent with their respective primary missions.
- (2) To accomplish the purposes of subsection (1) of this section, the department shall establish a procedure to clarify its geographic areas of responsibility. The areas of department protection shall be called forest protection zones. The forest protection zones shall include all forestland which the department is obligated to protect but shall not include forestland within rural fire districts or municipal fire districts which affected local fire control agencies agree, by mutual consent with the department, is not appropriate

for department protection. Forestland not included within a forest protection zone established by mutual agreement of the department and a rural fire district or a municipal fire district shall not be assessed under RCW 76.04.610 or 76.04.630.

- (3) After the department and any affected local fire protection agencies have agreed on the boundary of a forest protection zone, the department shall establish the boundary by rule under chapter 34.05 RCW.
- (4) Except by agreement of the affected parties, the establishment of forest protection zones shall not alter any mutual aid agreement.

RCW 76.04.205 - Burning permits—Civil penalty.

- (1) Except in certain areas designated by the department or as permitted under rules adopted by the department, a person shall have a valid written burning permit obtained from the department to burn:
 - (a) Any flammable material on any lands under the protection of the department; or
 - (b) Refuse or waste forest material on forest lands protected by the department.
- (2) To be valid a permit must be signed by both the department and the permittee. Conditions may be imposed in the permit for the protection of life, property, or air quality and the department may suspend or revoke the permits when conditions warrant. A permit shall be effective only under the conditions and for the period stated therein. Signing of the permit shall indicate the permittee's agreement to and acceptance of the conditions of the permit.
- (3) The department may inspect or cause to be inspected the area involved and may issue a burning permit if:
 - (a) All requirements relating to fire fighting equipment, the work to be done, and precautions to be taken before commencing the burning have been met;
 - (b) No unreasonable danger will result; and
 - (c) Burning will be done in compliance with air quality standards established by chapter 70A.15 RCW.
- (4) The department, authorized employees thereof, or any warden or ranger may refuse, revoke, or postpone the use of permits to burn when necessary for the safety of adjacent property or when necessary in their judgment to prevent air pollution as provided in chapter 70A.15 RCW. [1986 c 100 17.]
- (5) Any person who violates this section, any permit issued under this section, any rules that implement this section, or the silvicultural burning provisions set forth in chapter 70A.15 RCW, may incur a civil penalty pursuant to RCW 70A.15.3160. The department shall adopt a rule that establishes: (a) A framework for resolving conflicts that may arise related to this section, including the issuance of civil penalties pursuant to RCW 70A.15.3160 for violations of this section; and (b) the method by which penalties issued pursuant to RCW 70A.15.3160 for violations of this section will be calculated. The department shall conduct a public process to solicit input on the development of the rule.

RCW 70A.15: Washington Clean Air Act

RCW 70A.15.1005--Declaration of public policies and purpose.

It is declared to be the public policy to preserve, protect, and enhance the air quality for current and future generations. Air is an essential resource that must be protected from harmful levels of pollution. Improving air quality is a matter of statewide concern and is in the public interest. It is the intent of this chapter to secure and maintain levels of air quality that protect human health and safety, including the most sensitive members of the population, to comply with the requirements of the federal clean air act, to prevent injury to plant, animal life, and property, to foster the comfort and convenience of Washington's inhabitants, to promote the economic and social development of the state, and to facilitate the enjoyment of the natural attractions of the state.

It is further the intent of this chapter to protect the public welfare, to preserve visibility, to protect scenic, aesthetic, historic, and cultural values, and to prevent air pollution problems that interfere with the enjoyment of life, property, or natural attractions.

Because of the extent of the air pollution problem the legislature finds it necessary to return areas with poor air quality to levels adequate to protect health and the environment as expeditiously as possible but no later than December 31, 1995. Further, it is the intent of this chapter to prevent any areas of the state with acceptable air quality from reaching air contaminant levels that are not protective of human health and the environment.

The legislature recognizes that air pollution control projects may affect other environmental media. In selecting air pollution control strategies state and local agencies shall support those strategies that lessen the negative environmental impact of the project on all environmental media, including air, water, and land.

The legislature further recognizes that energy efficiency and energy conservation can help to reduce air pollution and shall therefore be considered when making decisions on air pollution control strategies and projects.

It is the policy of the state that the costs of protecting the air resource and operating state and local air pollution control programs shall be shared as equitably as possible among all sources whose emissions cause air pollution.

It is also declared as public policy that regional air pollution control programs are to be encouraged and supported to the extent practicable as essential instruments for the securing and maintenance of appropriate levels of air quality.

To these ends it is the purpose of this chapter to safeguard the public interest through an intensive, progressive, and coordinated statewide program of air pollution prevention and control, to provide for an appropriate distribution of responsibilities, and to encourage coordination and cooperation between the state, regional, and local units of government, to improve cooperation between state and federal government, public and private organizations, and the concerned individual, as well as to provide for the use of all known, available, and reasonable methods to reduce, prevent, and control air pollution.

The legislature recognizes that the problems and effects of air pollution cross political boundaries, are frequently regional or interjurisdictional in nature, and are dependent upon the existence of human activity in areas having common topography and weather conditions conducive to the buildup of air contaminants. In addition, the legislature recognizes that air pollution levels are aggravated and

compounded by increased population, and its consequences. These changes often result in increasingly serious problems for the public and the environment.

The legislature further recognizes that air emissions from thousands of small individual sources are major contributors to air pollution in many regions of the state. As the population of a region grows, small sources may contribute an increasing proportion of that region's total air emissions. It is declared to be the policy of the state to achieve significant reductions in emissions from those small sources whose aggregate emissions constitute a significant contribution to air pollution in a particular region.

It is the intent of the legislature that air pollution goals be incorporated in the missions and actions of state agencies.

[**1991 c 199 § 102; 1973 1st ex.s. c 193 § 1; 1969 ex.s. c 168 § 1; 1967 c 238 § 1.** Formerly RCW **70.94.011.**]

NOTES:

Finding—1991 c 199: "The legislature finds that ambient air pollution is the most serious environmental threat in Washington state. Air pollution causes significant harm to human health; damages the environment, including trees, crops, and animals; causes deterioration of equipment and materials; contributes to water pollution; and degrades the quality of life.

Over three million residents of Washington state live where air pollution levels are considered unhealthy. Of all toxic chemicals released into the environment more than half enter our breathing air. Citizens of Washington state spend hundreds of millions of dollars annually to offset health, environmental, and material damage caused by air pollution. The legislature considers such air pollution levels, costs, and damages to be unacceptable.

It is the intent of this act that the implementation of programs and regulations to control air pollution shall be the primary responsibility of the department of ecology and local air pollution control authorities." [**1991 c 199 § 101.**]

Alternative fuel and solar powered vehicles—1991 c 199: "The department of ecology shall contract with Western Washington University for the biennium ending June 30, 1993, for research and development of alternative fuel and solar powered vehicles. A report on the progress of such research shall be presented to the standing environmental committees and the department by January 1, 1994." [**1991 c 199 § 230.**]

RCW 70A.15.1030 Definitions.

...

(21) "Silvicultural burning" means burning of wood fiber on forestland consistent with the provisions of RCW 70A.15.5120.

RCW 70A.15.1070-Causing or permitting air pollution unlawful—Exception.

Except where specified in a variance permit, as provided in RCW 70A.15.2310, it shall be unlawful for any person to cause air pollution or permit it to be caused in violation of this chapter, or of any ordinance, resolution, rule or regulation validly promulgated hereunder.

RCW 70A.15.2310 Variances—Application for—Considerations— Limitations—Renewals— Review.

- (1) Any person who owns or is in control of any plant, building, structure, establishment, process or equipment may apply to the department of ecology or appropriate local authority board for a variance from rules or regulations governing the quality, nature, duration or extent of discharges of air contaminants. The application shall be accompanied by such information and data as the department of ecology or board may require. The department of ecology or board may grant such variance, provided that variances to state rules shall require the department's approval prior to being issued by a local authority board. The total time period for a variance and renewal of such variance shall not exceed one year. Variances may be issued by either the department or a local board but only after public hearing or due notice, if the department or board finds that:
 - (a) The emissions occurring or proposed to occur do not endanger public health or safety or the environment; and
 - (b) Compliance with the rules or regulations from which variance is sought would produce serious hardship without equal or greater benefits to the public.
- (2) No variance shall be granted pursuant to this section until the department of ecology or board has considered the relative interests of the applicant, other owners of property likely to be affected by the discharges, and the general public.
- (3) Any variance or renewal thereof shall be granted within the requirements of subsection (1) of this section and under conditions consistent with the reasons therefor, and within the following limitations:
 - (a) If the variance is granted on the ground that there is no practicable means known or available for the adequate prevention, abatement or control of the pollution involved, it shall be only until the necessary means for prevention, abatement or control become known and available, and subject to the taking of any substitute or alternate measures that the department of ecology or board may prescribe.
 - (b) If the variance is granted on the ground that compliance with the particular requirement or requirements from which variance is sought will require the taking of measures which, because of their extent or cost, must be spread over a considerable period of time, it shall be for a period not to exceed such reasonable time as, in the view of the department of ecology or board is requisite for the taking of the necessary measures. A variance granted on the ground specified herein shall contain a timetable for the taking of action in an expeditious manner and shall be conditioned on adherence to such timetable.
 - (c) If the variance is granted on the ground that it is justified to relieve or prevent hardship of a kind other than that provided for in (a) and (b) of this subsection, it shall be for not more than one year.
- (4) Any variance granted pursuant to this section may be renewed on terms and conditions and for periods which would be appropriate on initial granting of a variance. If complaint is made to the department of ecology or board on account of the variance, no renewal thereof shall be granted unless following a public hearing on the complaint on due notice the department or board finds that renewal is justified. No renewal shall be granted except on application therefor. Any such application shall be made at least sixty days prior to the expiration of the variance. Immediately upon receipt of an application for renewal, the department of ecology or board shall give public

notice of such application in accordance with rules of the department of ecology or board.

- (5) A variance or renewal shall not be a right of the applicant or holder thereof but shall be granted at the discretion of the department of ecology or board. However, any applicant adversely affected by the denial or the terms and conditions of the granting of an application for a variance or renewal of a variance by the department of ecology or board may obtain judicial review thereof under the provisions of chapter 34.05 RCW as now or hereafter amended.
- (6) Nothing in this section and no variance or renewal granted pursuant hereto shall be construed to prevent or limit the application of the emergency provisions and procedures of RCW 70A.15.6000 through 70A.15.6040 to any person or his or her property.
- (7) An application for a variance, or for the renewal thereof, submitted to the department of ecology or board pursuant to this section shall be approved or disapproved by the department or board within sixty-five days of receipt unless the applicant and the department of ecology or board agree to a continuance.
- (8) Variances approved under this section shall not be included in orders or permits provided for in RCW 70A.15.2260 or 70A.15.2210 until such time as the variance has been accepted by the United States environmental protection agency as part of an approved state implementation plan.

RCW 70A.15.3160 Civil penalties—Excusable excess emissions.

- (1) (a) Except as provided in RCW 43.05.060 through 43.05.080 and 43.05.150, and in addition to or as an alternate to any other penalty provided by law, any person who violates any of the provisions of this chapter, chapter 70A.25 or 70A.450 RCW, RCW 70A.45.080 or 76.04.205, or any of the rules in force under such chapters or section may incur a civil penalty in an amount not to exceed ten thousand dollars per day for each violation. Each such violation shall be a separate and distinct offense, and in case of a continuing violation, each day's continuance shall be a separate and distinct violation. Enforcement actions related to violations of RCW 76.04.205 must be consistent with the provisions of RCW 76.04.205.
(b) Any person who fails to take action as specified by an order issued pursuant to this chapter shall be liable for a civil penalty of not more than ten thousand dollars for each day of continued noncompliance.
- (2) (a) Penalties incurred but not paid shall accrue interest, beginning on the ninety-first day following the date that the penalty becomes due and payable, at the highest rate allowed by RCW 19.52.020 on the date that the penalty becomes due and payable. If violations or penalties are appealed, interest shall not begin to accrue until the thirty-first day following final resolution of the appeal.
(b) The maximum penalty amounts established in this section may be increased annually to account for inflation as determined by the state office of the economic and revenue forecast council.
- (3) Each act of commission or omission which procures, aids or abets in the violation shall be considered a violation under the provisions of this section

and subject to the same penalty. The penalties provided in this section shall be imposed pursuant to RCW 43.21B.300.

- (4) All penalties recovered under this section by the department shall be paid into the state treasury and credited to the air pollution control account established in RCW 70A.15.1010 or, if recovered by the authority, shall be paid into the treasury of the authority and credited to its funds. If a prior penalty for the same violation has been paid to a local authority, the penalty imposed by the department under subsection (1) of this section shall be reduced by the amount of the payment.
- (5) To secure the penalty incurred under this section, the state or the authority shall have a lien on any vessel used or operated in violation of this chapter which shall be enforced as provided in RCW 60.36.050.
- (6) Public or private entities that are recipients or potential recipients of department grants, whether for air quality related activities or not, may have such grants rescinded or withheld by the department for failure to comply with provisions of this chapter.
- (7) In addition to other penalties provided by this chapter, persons knowingly under-reporting emissions or other information used to set fees, or persons required to pay emission or permit fees who are more than ninety days late with such payments may be subject to a penalty equal to three times the amount of the original fee owed.
- (8) The department shall develop rules for excusing excess emissions from enforcement action if such excess emissions are unavoidable. The rules shall specify the criteria and procedures for the department and local air authorities to determine whether a period of excess emissions is excusable in accordance with the state implementation plan.

RCW 70A.15.3580 Limitations on burning wood for heat—First and second stage burn bans—Report on second stage burn ban—Exceptions—Emergency situations.

- (1) Any person in a residence or commercial establishment which has an adequate source of heat without burning wood shall:
 - (a) Not burn wood in any solid fuel burning device whenever the department has determined under RCW 70A.15.6010 that any air pollution episode exists in that area;
 - (b) Not burn wood in any solid fuel burning device except those which are either Oregon department of environmental quality phase II or United States environmental protection agency certified or certified by the department under RCW 70A.15.3530(1) or a pellet stove either certified or issued an exemption by the United States environmental protection agency in accordance with Title 40, Part 60 of the Code of Federal Regulations, in the geographical area and for the period of time that a first stage of impaired air quality has been determined, by the department or any authority, for that area.
 - (i) A first stage of impaired air quality is reached when forecasted meteorological conditions are predicted to cause fine particulate levels to exceed thirty-five micrograms per cubic meter, measured on a twenty-four hour average, within forty-eight hours, except for areas

- of fine particulate nonattainment or areas at risk for fine particulate nonattainment;
- (ii) A first stage burn ban for impaired air quality may be called for a county containing fine particulate nonattainment areas or areas at risk for fine particulate nonattainment, and when feasible only for the necessary portions of the county, when forecasted meteorological conditions are predicted to cause fine particulate levels to reach or exceed thirty micrograms per cubic meter, measured on a twenty-four hour average, within seventy-two hours; and
- (c)(i) Not burn wood in any solid fuel burning device in a geographical area and for the period of time that a second stage of impaired air quality has been determined by the department or any authority, for that area. A second stage of impaired air quality is reached when a first stage of impaired air quality has been in force and has not been sufficient to reduce the increasing fine particulate pollution trend, fine particulates are at an ambient level of twenty-five micrograms per cubic meter measured on a twenty-four hour average, and forecasted meteorological conditions are not expected to allow levels of fine particulates to decline below twenty-five micrograms per cubic meter for a period of twenty-four hours or more from the time that the fine particulates are measured at the trigger level.
- (ii) A second stage burn ban may be called without calling a first stage burn ban only when all of the following occur and shall require the department or the local air pollution control authority calling a second stage burn ban under this subsection to comply with the requirements of subsection (3) of this section:
 - (A) Fine particulate levels have reached or exceeded twenty-five micrograms per cubic meter, measured on a twenty-four hour average;
 - (B) Meteorological conditions have caused fine particulate levels to rise rapidly;
 - (C) Meteorological conditions are predicted to cause fine particulate levels to exceed the thirty-five micrograms per cubic meter, measured on a twenty-four hour average, within twenty-four hours; and
 - (D) Meteorological conditions are highly likely to prevent sufficient dispersion of fine particulate.
 - (iii) In fine particulate nonattainment areas or areas at risk for fine particulate nonattainment, a second stage burn ban may be called for the county containing the nonattainment area or areas at risk for nonattainment, and when feasible only for the necessary portions of the county, without calling a first stage burn ban only when (c)(ii)(A), (B), and (D) of this subsection have been met and meteorological conditions are predicted to cause fine particulate levels to reach or exceed thirty micrograms per cubic meter, measured on a twenty-four hour average, within twenty-four hours.
- (2) Actions of the department and local air pollution control authorities under this section shall preempt actions of other state agencies and local governments for the purposes of controlling air pollution from solid fuel burning devices, except where authorized by chapter 199, Laws of 1991.

- (3) (a) The department or any local air pollution control authority that has called a second stage burn ban under the authority of subsection (1)(c)(ii) of this section shall, within ninety days, prepare a written report describing:
- (i) The meteorological conditions that resulted in their calling the second stage burn ban;
 - (ii) Whether the agency could have taken actions to avoid calling a second stage burn ban without calling a first stage burn ban; and
 - (iii) Any changes the department or authority is making to its procedures of calling first stage and second stage burn bans to avoid calling a second stage burn ban without first calling a first stage burn ban.
- (b) After consulting with affected parties, the department shall prescribe the format of such a report and may also require additional information be included in the report. All reports shall be sent to the department and the department shall keep the reports on file for not less than five years and available for public inspection and copying in accordance with RCW 42.56.090.
- (4) For the purposes of chapter 219, Laws of 2012, an area at risk for nonattainment means an area where the three-year average of the annual ninety-eighth percentile of twenty-four hour fine particulate values is greater than twenty-nine micrograms per cubic meter, based on the years 2008 through 2010 monitoring data.
- (5) (a) Nothing in this section restricts a person from installing or repairing a certified solid fuel burning device approved by the department under the program established under RCW 70A.15.3530 in a residence or commercial establishment or from replacing a solid fuel burning device with a certified solid fuel burning device. Nothing in this section restricts a person from burning wood in a solid fuel burning device, regardless of whether a burn ban has been called, if there is an emergency power outage. In addition, for the duration of an emergency power outage, nothing restricts the use of a solid fuel burning device or the temporary installation, repair, or replacement of a solid fuel burning device to prevent the loss of life, health, or business.
- (b) For the purposes of this subsection, an emergency power outage includes:
- (i) Any natural or human-caused event beyond the control of a person that leaves the person's residence or commercial establishment temporarily without an adequate source of heat other than the solid fuel burning device; or
 - (ii) A natural or human-caused event for which the governor declares an emergency in an area under chapter 43.06 RCW, including a public disorder, disaster, or energy emergency under RCW 43.06.010(12).

RCW 70A.15.5000-Definition of "outdoor burning."

As used in this subchapter, "outdoor burning" means the combustion of material of any type in an open fire or in an outdoor container without providing for the control of combustion or the control of emissions from the combustion.

RCW 70A.15.5010(2)-Outdoor burning—Fires prohibited—Exceptions.

... no person shall cause or allow any outdoor fire:

- (1) Containing garbage, dead animals, asphalt, petroleum products, paints, rubber products, plastics, or any substance other than natural vegetation that normally emits dense smoke or obnoxious odors. Agricultural heating devices that otherwise meet the requirements of this chapter shall not be considered outdoor fires under this section;
- (2) During a forecast, alert, warning or emergency condition as defined in RCW 70A.15.6010 or impaired air quality condition as defined in RCW 70A.15.3580.

RCW 70A.15.5020-Outdoor burning—Areas where prohibited—Exceptions—Use for management of storm or flood-related debris—Silvicultural burning.

- (1) Consistent with the policy of the state to reduce outdoor burning to the greatest extent practical, outdoor burning shall not be allowed in:
 - (a) Any area of the state where federal or state ambient air quality standards are exceeded for pollutants emitted by outdoor burning; or
 - (b) Any urban growth area as defined by RCW 36.70A.030, or any city of the state having a population greater than ten thousand people if such cities are threatened to exceed state or federal air quality standards, and alternative disposal practices consistent with good solid waste management are reasonably available or practices eliminating production of organic refuse are reasonably available.
- (2) Notwithstanding any other provision of this section, outdoor burning may be allowed for the exclusive purpose of managing storm or flood-related debris. The decision to allow burning shall be made by the entity with permitting jurisdiction as determined under RCW 70A.15.5120 or 70A.15.5040. If outdoor burning is allowed in areas subject to subsection (1)(a) or (b) of this section, a permit shall be required, and a fee may be collected to cover the expenses of administering and enforcing the permit. All conditions and restrictions pursuant to RCW 70A.15.5080(1) and 70A.15.5010 apply to outdoor burning allowed under this section.
- ...
- (4) This section shall not apply to silvicultural burning used to improve or maintain fire dependent ecosystems for rare plants or animals within state, federal, and private natural area preserves, natural resource conservation areas, parks, and other wildlife areas.
- (5) Notwithstanding any other provisions of this section, outdoor burning that reduces the risk of a wildfire, or is normal, necessary, and customary to ongoing silvicultural activities consistent with silvicultural burning authorized under RCW 70A.15.5120(1), is allowed within the urban growth area in accordance with RCW 70A.15.5120. Before issuing a burn permit within the urban growth area for any burn that exceeds one hundred tons of material, the department of natural resources shall consult with department of ecology and condition the issuance and use of such permits to comply with air quality standards established by the department of ecology.

RCW 70A.15.5030 Outdoor burning—Permits issued by political subdivisions.

In addition to any other powers granted to them by law, the fire protection agency, county, or conservation district issuing burning permits shall regulate or prohibit outdoor burning as necessary to prevent or abate the nuisances caused by such burning. No fire protection agency, county, or conservation district may issue a burning permit in an area where the department or local board has declared any stage of impaired air quality per RCW 70A.15.3580 or any stage of an air pollution episode. All burning permits issued shall be subject to all applicable fee, permitting, penalty, and enforcement provisions of this chapter. The permitted burning shall not cause damage to public health or the environment.

Any entity issuing a permit under this section may charge a fee at the level necessary to recover the costs of administering and enforcing the permit program.

RCW 70A.15.5070--Limited outdoor burning—Program—Exceptions.

- (1) It shall be the responsibility and duty of the department of natural resources, department of ecology, department of agriculture, county fire marshals in consultation with fire districts, and local air pollution control authorities to establish, through regulations, ordinances, or policy, a limited burning permit program.
- (2) The permit program shall apply to residential and land clearing burning in the following areas:
 - (a) In the nonurban areas of any county with an unincorporated population of greater than fifty thousand; and
 - (b) In any city and urban growth area that is not otherwise prohibited from burning pursuant to RCW 70A.15.5020.
- (3) The permit program shall apply only to land clearing burning in the nonurban areas of any county with an unincorporated population of less than fifty thousand.
- (4) The permit program may be limited to a general permit by rule, or by verbal, written, or electronic approval by the permitting entity.
- (5) Notwithstanding any other provision of this section, neither a permit nor the payment of a fee shall be required for outdoor burning for the purpose of disposal of tumbleweeds blown by wind. Such burning shall not be conducted during an air pollution episode or any stage of impaired air quality declared under RCW 70A.15.6010. This subsection (5) shall only apply within counties with a population less than two hundred fifty thousand.
- (6) Burning shall be prohibited in an area when an alternate technology or method of disposing of the organic refuse is available, reasonably economical, and less harmful to the environment. It is the policy of this state to foster and encourage development of alternate methods or technology for disposing of or reducing the amount of organic refuse.
- (7) Incidental agricultural burning must be allowed without applying for any permit and without the payment of any fee if:
 - (a) The burning is incidental to commercial agricultural activities;
 - (b) The operator notifies the local fire department within the area where the burning is to be conducted;
 - (c) The burning does not occur during an air pollution episode or any stage of impaired air quality declared under RCW 70A.15.6010; and

- (d) Only the following items are burned:
 - (i) Orchard prunings;
 - (ii) Organic debris along fence lines or irrigation or drainage ditches; or
 - (iii) Organic debris blown by wind.
- (8) As used in this section, "nonurban areas" are unincorporated areas within a county that are not designated as urban growth areas under chapter 36.70A RCW.
- (9) Nothing in this section shall require fire districts to enforce air quality requirements related to outdoor burning, unless the fire district enters into an agreement with the department of ecology, department of natural resources, a local air pollution control authority, or other appropriate entity to provide such enforcement.

RCW 70A.15.5080--Limited outdoor burning—Permits issued by political subdivisions—Types of fires permitted.

The following outdoor fires described in this section may be burned subject to the provisions of this chapter and also subject to city ordinances, county resolutions, rules of fire districts and laws, and rules enforced by the department of natural resources if a permit has been issued by a fire protection agency, county, or conservation district:

- (1) Fires consisting of leaves, clippings, prunings and other yard and gardening refuse originating on lands immediately adjacent and in close proximity to a human dwelling and burned on such lands by the property owner or his or her designee.
- (2) Fires consisting of residue of a natural character such as trees, stumps, shrubbery or other natural vegetation arising from land clearing projects or agricultural pursuits for pest or disease control; except that the fires described in this subsection may be prohibited in those areas having a general population density of one thousand or more persons per square mile.

RCW 70A.15.5120--Burning permits for abating or prevention of forest fire hazards, management of ecosystems, instruction or silvicultural operations—Issuance—Fees.

- (1) The department of natural resources is responsible for issuing and regulating burning permits required by it relating to the following activities for the protection of life or property and for the public health, safety, and welfare:
 - (a) Abating or prevention of a forest fire hazard;
 - (b) Reducing the risk of a wildfire under RCW 70A.15.5020(5);
 - (c) Instruction of public officials in methods of forest firefighting;
 - (d) Any silvicultural operation to improve the forestlands of the state, including but not limited to forest health and resiliency, decreasing forest insect or disease susceptibility, maintaining or restoring native vegetation, or otherwise enhancing resiliency to fire; and
 - (e) Silvicultural burning used to improve or maintain fire dependent ecosystems for rare plants or animals within state, federal, and private natural area preserves, natural resource conservation areas, parks, and other wildlife areas.
- (2) The department of natural resources shall not retain such authority, but it shall be the responsibility of the appropriate fire protection agency for

permitting and regulating outdoor burning on lands where the department of natural resources does not have fire protection responsibility, except for the issuance of permits for reducing the risk of wildfire under RCW 70A.15.5020(5). The department of natural resources may enter into cooperative agreements with local fire protection agencies to issue permits for reducing wildfire risk under RCW 70A.15.5020(5).

- (3) Permit fees shall be assessed for wildfire risk reduction and for silvicultural burning under the jurisdiction of the department of natural resources and collected by the department of natural resources as provided for in this section. All fees shall be deposited in the air pollution control account, created in RCW 70A.15.1010. The legislature shall appropriate to the department of natural resources funds from the air pollution control account to enforce and administer the program under this section and RCW 70A.15.5130, 70A.15.5140, and 70A.15.5150. Fees shall be set by rule by the department of natural resources at the level necessary to cover the costs of the program after receiving recommendations on such fees from the public.

RCW 70A.15.5130--Silvicultural forest burning—Reduce statewide emissions—Exemption—Monitoring program.

- (1)(a) The department of natural resources shall administer a program to reduce statewide emissions from silvicultural forest burning so as to achieve the following minimum objectives:
- (i) Twenty percent reduction by December 31, 1994, providing a ceiling for emissions until December 31, 2000; and
 - (ii) Fifty percent reduction by December 31, 2000, providing a ceiling for emissions thereafter.
- (b) Reductions shall be calculated from the average annual emissions level from calendar years 1985 to 1989, using the same methodology for both reduction and base year calculations.
- (2)(a) The department of natural resources, within twelve months after May 15, 1991, shall develop a plan, based upon the existing smoke management agreement to carry out the programs as described in this section in the most efficient, cost-effective manner possible. The plan shall be developed in consultation with the department of ecology, public and private landowners engaged in silvicultural forest burning, and representatives of the public.
- (b) The plan shall recognize the variations in silvicultural forest burning including, but not limited to, a landowner's responsibility to abate an extreme fire hazard under chapter 76.04 RCW and other objectives of burning, including abating and preventing a fire hazard, geographic region, climate, elevation and slope, proximity to populated areas, diversity of land ownership, improving forest health and resiliency, decreasing forest insect or disease susceptibility, maintaining or restoring native vegetation, or otherwise enhancing resiliency to fire. The plan shall establish priorities that the department of natural resources shall use to allocate allowable emissions, including but not limited to, forest health and resiliency, silvicultural burning used to improve or maintain fire dependent ecosystems for rare plants or animals within state, federal, and private natural area preserves, natural

- resource conservation areas, parks, and other wildlife areas. The plan shall also recognize the real costs of the emissions program and recommend equitable fees to cover the costs of the program.
- (c) The emission reductions in this section are to apply to all forestlands including those owned and managed by the United States. If the United States does not participate in implementing the plan, the departments of natural resources and ecology shall use all appropriate and available methods or enforcement powers to ensure participation.
 - (d) The plan shall include a tracking system designed to measure the degree of progress toward the emission reductions goals set in this section. The department of natural resources shall report annually to the department of ecology and the legislature on the status of the plan, emission reductions and progress toward meeting the objectives specified in this section, and the goals of this chapter and chapter 76.04 RCW.
- (3) If the December 31, 1994, emission reductions targets in this section are not met, the department of natural resources, in consultation with the department of ecology, shall use its authority granted in this chapter and chapter 76.04 RCW to immediately limit emissions from such burning to the 1994 target levels and limit silvicultural forest burning in subsequent years to achieve equal annual incremental reductions so as to achieve the December 31, 2000, target level. If, as a result of the program established in this section, the emission reductions are met in 1994, but are not met by December 31, 2000, the department of natural resources in consultation with the department of ecology shall immediately limit silvicultural forest burning to reduce emissions from such burning to the December 31, 2000, target level in all subsequent years.
- (4) Emissions from silvicultural burning in eastern Washington that is conducted for the purpose of restoring forest health or preventing the additional deterioration of forest health are exempt from the reduction targets and calculations in this section if the following conditions are met:
- (a) The landowner submits a written request to the department identifying the location of the proposed burning and the nature of the forest health problem to be corrected. The request shall include a brief description of alternatives to silvicultural burning and reasons why the landowner believes the alternatives not to be appropriate.
 - (b) The department determines that the proposed silvicultural burning operation is being conducted to restore forest health or prevent additional deterioration to forest health; meets the requirements of the state smoke management plan to protect public health, visibility, and the environment; and will not be conducted during an air pollution episode or during periods of impaired air quality in the vicinity of the proposed burn.
 - (c) Upon approval of the request by the department and before burning, the landowner is encouraged to notify the public in the vicinity of the burn of the general location and approximate time of ignition.
- (5) The department of ecology may conduct a limited, seasonal ambient air quality monitoring program to measure the effects of forest health burning conducted under subsection (4) of this section. The monitoring program may be developed in consultation with the department of natural resources, private and public forestland owners, academic experts in forest health issues, and the general public.

RCW 70A.15.5140-Burning permits for abating or prevention of forest fire hazards, management of ecosystems, instruction or silvicultural operations—Conditions for issuance and use of permits—Air quality standards to be met—Alternate methods to lessen forest debris.

The department of natural resources in granting burning permits for fires for the purposes set forth in RCW 70A.15.5120 shall condition the issuance and use of such permits to comply with air quality standards established by the department of ecology after full consultation with the department of natural resources. Such burning shall not cause the state air quality standards to be exceeded in the ambient air up to two thousand feet above ground level over critical areas designated by the department of ecology, otherwise subject to air pollution from other sources. Air quality standards shall be established and published by the department of ecology which shall also establish a procedure for advising the department of natural resources when and where air contaminant levels exceed or threaten to exceed the ambient air standards over such critical areas. The air quality shall be quantitatively measured by the department of ecology or the appropriate local air pollution control authority at established monitoring stations over such designated areas. Further, such permitted burning shall not cause damage to public health or the environment. All permits issued under this section shall be subject to all applicable fees, permitting, penalty, and enforcement provisions of this chapter. The department of natural resources shall set forth smoke dispersal objectives designed consistent with this section to minimize any air pollution from such burning and the procedures necessary to meet those objectives.

The department of natural resources shall encourage more intense utilization in logging and alternative silviculture practices to reduce the need for burning. The department of natural resources shall, whenever practical, encourage landowners to develop and use alternative acceptable disposal methods subject to the following priorities: (1) Slash production minimization, (2) slash utilization, (3) nonburning disposal, (4) silvicultural burning. Such alternative methods shall be evaluated as to the relative impact on air, water, and land pollution, public health, and their financial feasibility.

The department of natural resources shall not issue burning permits and shall revoke previously issued permits at any time in any area where the department of ecology or local board has declared a stage of impaired air quality as defined in RCW 70A.15.3580.

RCW 70A.15.5150 Cooperation between department of natural resources and state, local, or regional air pollution authorities—Withholding of permits.

In the regulation of outdoor burning not included in RCW 70A.15.5120 requiring permits from the department of natural resources, said department and the state, local, or regional air pollution control authorities will cooperate in regulating such burning so as to minimize insofar as possible duplicate inspections and separate permits while still accomplishing the objectives and responsibilities of the respective agencies. The department of natural resources shall include any local authority's burning regulations with permits issued where applicable pursuant to RCW 70, 70A.15.5020, 70A.15.5040, 70A.15.5050, 70A.15.5060, 70A.15.5070, and

70A.15.5080. The department shall develop agreements with all local authorities to coordinate regulations.

Permits shall be withheld by the department of natural resources when so requested by the department of ecology if a forecast, alert, warning, or emergency condition exists as defined in the episode criteria of the department of ecology.

RCW 70A.15.5190 Outdoor burning allowed for managing storm or flood-related debris.

Consistent with RCW 70A.15.5020, outdoor burning may be allowed anywhere in the state for the exclusive purpose of managing storm or flood-related debris.

[2020 c 20 § 1148; 2009 c 118 § 701. Formerly RCW 70.94.6548.]

Washington Administrative Code (WAC)

WAC 332-24: DNR Burning Permit Regulations

WAC 332-24-201-Burning Permit Program—Requirements and Exceptions.

Under authority granted in RCW 76.04.015 and 76.04.205, the following regulation is hereby promulgated:

- (1) The department is responsible, by law, for the granting of burning permits for burning on lands it protects; and
- (2) The department administers the protection of air quality as provided in chapter 70A.15 RCW resulting from burning on lands under its protection; and
- (3) The department has determined that the effects of such burning on life, property and air quality are of year-round effect; therefore
- (4) Throughout the year, outdoor fire is prohibited on lands protected by the department where forest protection assessment is being, or is subject to being, assessed unless: (a) A written burning permit is obtained from the department and the requirements of WAC 332-24-205 and 332-24-221 are followed; or (b) Burning meets the regulations outlined in WAC 332-24-205 and 332-24-211.
- (5) This chapter applies to all burning on lands protected by the department. It does not apply to agricultural burning as defined in WAC 173-425-030(1) nor to open burning as defined in WAC 173-425-030(2).

WAC 332-24-205 - General rules--minimum requirements for all burning.

The following rules apply to all burning regulated by the department.

- (1) The department reserves the right to restrict, regulate, refuse, revoke or postpone outdoor fires under RCW 76.04.205 and 76.04.315, and chapter 70A.15 RCW due to adverse fire weather or to prevent restriction of visibility, excessive air pollution or a nuisance.
- (2) Burning shall not be allowed within non-attainment areas of the state as established by Washington department of ecology for particulate matter ten microns or less or carbon monoxide, except for:
 - (a) Fires for improving and maintaining fire dependent ecosystems; or
 - (b) Fires for training wildland fire fighters; or

- (c) Fires set for a defined research project; or
 - (d) Military training exercises; or
 - (e) The exclusive purpose of managing storm or flood-related debris; or
 - (f) Where exempted by local or state air pollution control agencies.
- (3) Burning shall not be allowed inside urban growth areas as designated under growth management plans, or in cities of greater than ten thousand population as follows:
- (a) In urban growth areas where reasonable alternatives exist.
 - (b) In cities with a population of ten thousand or more as established by the office of financial management.
 - (i) That exceed or threaten to exceed federal or state ambient air quality standards; and
 - (ii) Where reasonable alternatives to outdoor burning exist, in accordance with WAC 173-425-090.
 - (c) Outdoor burning that reduces the risk of a wildfire, or is normal, necessary, and customary to ongoing silvicultural activities consistent with silvicultural burning authorized under RCW 70.94.6534(1), is allowed within the urban growth area in accordance with RCW 70.94.6534. Before issuing a burn permit within the urban growth area for any burn that exceeds one hundred tons of material, the department of natural resources shall consult with department of ecology.
- (4) No fires shall be ignited when:
- (a) The department of ecology has declared an air pollution episode for the geographic area pursuant to chapter 173-435 WAC; or
 - (b) The department of ecology or a local air pollution control authority has declared impaired air quality for the geographic area in which the burning is to be done.
- (5) A person responsible for a burn at the time an episode or impaired air quality is called pursuant to chapter 173-425 WAC, shall extinguish the fire by:
- (a) Withholding fuel from the burn;
 - (b) Allowing the fire to burn down; and
 - (c) Aggressively putting out the fire until there is no visible smoke, unless otherwise allowed by the department.
- (6) Prior to lighting, the person doing the burning must telephone the department, and obtain any special instructions for the day and location of the proposed burn. Those instructions thereupon become part of the conditions of burning.
- (7) The fire must not include rubber products, plastic products, asphalt, garbage, dead animals, petroleum products, paints, or any similar prohibited materials that emit dense smoke or create offensive odors when burned, pursuant to RCW 70A.15.5010(1).
- (8) If the fire creates a nuisance from smoke or flying ash, it must be extinguished. For purposes of this section, a nuisance exists when emissions from any open fire cause physical discomfort or health problems to people residing in the vicinity of the burning or physical damage to property.
- (9) Burning within the department's fire protection areas shall not:
- (a) Cause visibility to be obscured on public roads and highways by the smoke from such fires; or
 - (b) Endanger life or property through negligent spread of fire or pollutants.

- (10) A person capable of extinguishing the fire must attend the fire at all times and the fire must be completely extinguished before being left unattended.
- (11) No fires are to be within fifty feet of structures, or within five hundred feet of forest slash without a written burning permit.
- (12) The landowner or landowner's designated representative's written permission must be obtained before kindling a fire on the land of another.
- (13) The department reserves the authority to provide waivers, exceptions, and/or to impose additional requirements through the use of written burning permits and the smoke management plan.

WAC 332-24-211 - Specific rules for small fires not requiring a written burning permit.

In addition to WAC 332-24-205, the following rules shall apply to burning regulated by the department that does not require a written burning permit. A written burning permit is not required from the department under the following conditions:

- (1) In certain geographic areas of the state as designated by the department in subsections (3) of this section and when the requirements of subsections (4), (5), and (6) of this section are met; or
- (2) When the fire is:
 - (a) Contained within a campfire pit, approved by the department, located in a state, county, municipal, or other campground;
 - (b) Contained within a camp stove or barbecue;
 - (c) A hand-built pile no larger than four feet in diameter that is being used exclusively for recreational purposes; and
 - (d) Situated on bare soil, gravel bars, beaches, green field, or other similar areas free of flammable material for a sufficient distance adequate to prevent the escape of fires.
- (3) A fire that does not require a written permit has established size limitations based on time of year and the county within which the burning occurs.
 - (a) From July 1 to October 15 individual pile size in all counties shall be limited to no larger than four feet, except pile size in Clallam and Jefferson counties is limited to ten feet.
 - (b) From October 16 through June 30 individual pile size in all counties is limited to ten feet; except pile size is limited to four feet in Island, King, Kitsap, Mason, Pierce, San Juan, and Spokane counties
- (4) A serviceable shovel and a minimum of five gallons of water must be within the immediate vicinity of the fire. A bucket is acceptable if the outdoor fire is adjacent to an accessible body of water. A charged garden hose or other adequate water supply may be substituted for the five gallon water requirement.
- (5) One pile may be burned at any one time and each pile must be extinguished before lighting another.
- (6) Burning must be done during periods of calm to very light winds. Burning when wind will scatter loose flammable materials, such as dry leaves and clippings, is prohibited.

WAC 332-24-217 - Burning permit requirements—penalty.

Failure to comply with the rules in chapter 332-24 WAC voids permission to burn. Any person burning without complying with chapter 332-24 WAC is in violation of RCW 76.04.205 and chapter 70A.15 RCW. Convictions or bail forfeitures in connection with illegal burning under chapter 332-24 WAC may result in refusal to issue further permits for a two-year period from the date of the illegal burning. In addition to any other fines and penalties that may be imposed, the department may charge and recover costs from the person responsible for any response to control or extinguish an illegal fire caused in part or in whole by negligent acts or omissions.

WAC 332-24-221 - Specific rules for burning that requires a written burning permit. Persons not able to meet the requirements of WAC 332-24-205 and 332-24-211 must apply for a written burning permit through the department. In addition to the rules outlined in WAC 332-24205, the following are additional requirements for written permits:

- (1) Fees for written burning permits will be charged and collected pursuant to chapter 70A.15 RCW and shall be one hundred five dollars fifty cents for under one hundred tons of consumable debris; and for burns one hundred tons of consumable debris and greater as follows:

| Consumable Debris | Fee schedule |
|---------------------------------------|--------------|
| 0 - 100 tons | 105.5 |
| 101 - 500 tons | 357 |
| 501 - 1000 tons | 846 |
| 1001 - 1500 tons | 1356 |
| 1501 - 2000 tons | 1869 |
| 2001 - 2500 tons | 2380 |
| 2501 - 3000 tons | 2893 |
| 3001 - 3500 tons | 3402 |
| 3501 - 4000 tons | 3914 |
| 4001 - 4500 tons | 4427 |
| 4501 - 5000 tons | 4938 |
| 5001 - 5500 tons | 5451 |
| 5501 - 6000 tons | 5962 |
| 6001 - 6500 tons | 6476 |
| 6501 - 7000 tons | 6987 |
| 7001 - 7500 tons | 7499 |
| 7501 - 8000 tons | 8011 |
| 8001 - 8500 tons | 8523 |
| 8501 - 9000 tons | 9035 |
| 9001 - 9500 tons | 9548 |
| 9501 - 10000 tons | 10057 |
| 10001 + tons | 10395 |
| plus .50 per ton for tons over 10,000 | |

For purposes of this section, consumable debris is the amount of debris that the department determines will be consumed by the proposed burning.

- (2) Written burning permits are not considered valid unless all of the following conditions apply:
 - (a) The written permit has been signed by the applicant agreeing to follow all requirements of chapter 332-24 WAC, the smoke management plan in effect at the time of the burning, and any additional terms and conditions specified by the department in writing; and
 - (b) The required permit fee has been secured or paid according to approved department procedures; and
 - (c) The person doing the burning has the permit in possession while burning and is complying with all terms and conditions of such permit, the smoke management plan in effect at the time of the burning, and all applicable portions of chapter 332-24 WAC.
- (3) Permits are written only for the burn site and fuel quantity represented to the department on the permit application. Addition of fuel or changing the burn site, after the permit application has been submitted to the department, is prohibited unless a new permit application is submitted and any added permit fee is paid, if required.

APPENDIX 8: Alternative Debris Disposal Techniques

This section has a description and evaluation of the different alternatives for site treatment, other than prescribed burning. In most instances each of these treatments may be used alone or in conjunction with another treatment. Each alternative should be evaluated for operational limitations, soil quality, human health effects, and economics. The alternatives are:

- I. Alternative mechanical treatments.
- II. Increased utilization.
- III. Chemical.
- IV. Manual.
- V. No treatment.

I. Alternative Mechanical Treatments

A. Low ground pressure tractors (cats and skidders), used for:

1. Piling.
2. Forest cultivation.
3. Slash orientation.

Description: Crawler tractors or low ground pressure tractors outfitted with various types of blades or mowing attachments are the most commonly used methods on slopes less than 35 percent. Site preparation is most often accomplished using brush blades (blade with a rake attached) to pile unmerchantable logging material, brush and sometimes part of the top layers of soil. The action is named for the extent of the activity. For example, preparing planting spots is called scalping; plowing a strip is called furrowing or contouring. In addition there are different attachments available for realigning logging debris, crushing and grinding debris, and disking.

The advantages of low ground pressure tractors are the low costs and high efficiency of treatment. In many cases, the plant, roots and all, are removed.

The disadvantages of low ground pressure tractors are: 1) intense disturbance of site with this type of equipment, particularly during site preparation, 2) most techniques are nonselective and remove non-target plants, 3) there are slope and topographic limitations and 4) there is usually some re-sprouting if the whole plant is not removed.

The following are general restrictions which apply to tractors (both rubber-tired and crawler) due to site protection and equipment limitations. Tractors are generally prohibited on slopes exceeding 35 percent, to avoid adverse impacts. Tractors are prohibited on critical soils, such as those with high compaction potential, except at designated locations where significant, adverse impacts can be

avoided. In most cases, tractors are prohibited on soils with high erosion and sedimentation hazard. Tractors may be limited to operating only during certain periods in order to maintain long-term productivity of forest and range soils. Timing of operations are based on soil moisture content and soil properties in order to reduce compaction.

B. Track-mounted excavators:

1. Standard bucket and thumb.
2. Slash grinder.
3. Modified grapple.

Description: Track-mounted excavator outfitted with various types of attachments for logging and site preparation, most commonly used as log loaders and shovels. Site preparation is most often accomplished using the grapples or bucket and thumb to pile logging debris or to create planting spots.

New developments include attachments which can be used to create planting spots in logging debris, road side clearing and pre-commercial thinning. These attachments accomplish this by grinding slash down to mineral soil on the desired number of planting spots per acre. In the process, the logging debris is reduced eliminating piles and the need for burning.

Another attachment which can be used for site preparation is a device similar to the grapples on a loader only modified into a clam configuration. This is a versatile accessory which can be used for site preparation, log handling, excavation and road building. Its value for site preparation is to create planting areas on a spot by spot basis, or to pile logging debris.

The advantages of track-mounted excavators are they may be used on: 1) slopes as great as 50 percent under proper conditions, 2) rough terrain, and 3) more fragile site conditions. They also create less soil disturbance. If burning is an objective, they can construct cleaner piles by being selective on the type of material that is piled. For example, a contract may specify that larger fuels be left on the ground in a natural arrangement.

Disadvantages to the track-mounted excavator are higher costs, and they may require a larger lowboy than other mechanical options do to move them into a site.

C. Walking excavator:

1. Standard bucket and thumb.
2. Slash grinder.
3. Rake (to be constructed).

Description: A walking excavator has individually operated legs and wheels which allow it to operate almost anywhere. It can work up, down, or across steep slopes. It has the capability to climb over 5-foot obstacles without touching them. It can adapt its base to rough terrain of all kinds while the operator sits in an upright position. Operating weight is 14,300 pounds distributed over two large flotation tires and

two 24-inch outrigger pads for very low ground pressure. At this time, the machine operates with a selection of buckets which can be used for piling or windrowing debris and creating planting spots. Optional attachments are now being developed which will give the machine more versatility and make it more efficient. The attachments being considered for development include a slash grinder head, grapples and a rake.

The advantages of a walking excavator include those for track-mounted excavators in addition to the following. With the proper modification this machine can work on unlimited slopes with very minor site disturbance. It does not require a lowboy to be transported from site to site. Due to its configuration it may work in environmental sensitive areas with very light site impact.

Disadvantages to the walking excavator include its size limitation and its lack of proved production. The walking excavator has a maximum boom reach of 26 feet and currently is only available in the one size. The small size and low horsepower of this machine may adversely affect its production rates making it uneconomical to operate. At this time there are no production results to judge cost effectiveness, having not been tested. At this time there are no treatment costs available for the walking excavator. We are in the process of setting up a local demonstration to evaluate the equipment's capabilities.

D. In-unit mobile chipper

Description: This technique involves mounting a chipper on an all-terrain vehicle which can move about a logged unit similar to skidding equipment. In addition to the chipper, a grapple loader can be added to feed the machine. Its purpose is to chip logging slash which results in a change of the arrangement and physical characteristics of the slash. Through this process, unit slash can be reduced and rearranged to provide planting spots and meet hazard abatement requirements.

The advantages of this system are to reduce slash hazard and create planting spots while being selective in treatment. The process can be accomplished with minimum site disturbance leaving soil and duff intact, unlike the piling of other ground machines. In addition, the chips can be left distributed on the site aiding in the retention of soil nutrients and soil moisture. This machine can be used to chip landing piles and road right-of-way slash for hog fuel and with additional development, clean chips may be a possibility.

As with all other methods, the timing of application can affect the success and efficiency of the operation when using mechanical methods. Application is usually timed to avoid sprouting of brush and high soil moisture content.

Adverse health effects using mechanical methods are that operators and other workers are in the vicinity of the equipment. Serious injuries can result if an operator loses control of the machine on steep terrain. Such accidents are uncommon among experienced operators, but they are difficult to avoid entirely. Workers can be struck by falling trees or debris thrown by the equipment while it is in operation, especially when brush cutters or mowers are being used.

II. Increased Utilization

Set minimum yarding specifications (6 foot x 6 inches, etc.).

- A. Chips for hog fuel
- B. Chips for co-generation plants
- C. Clean chips

Description: Various, opportunities exist under this option to set several different yarding specifications. They could include everything from a minimum size specification of 4 feet x 4 inches to whole tree yarding. The material is yarded into the different landings. Once the yarded unmerchantable material (YUM) is collected it may be sold as firewood, chips for hog fuel, chipped for co-generation plants or debarked and chipped for clean chips. The extent that a unit should be YUM yarded depends upon current market conditions, and/or the Land Managers objectives for the amount of logging debris which should be left to meet reforestation objectives. If the objective is to reforest without burning, the specifications would have to be set on the predicted amount of slash that will accumulate on the unit. If a determination is made that YUM yarding cannot be accomplished to the extent that reforestation is possible, the objective could be to YUM enough to reduce the amount of duff that might be consumed when burning, thus reducing emissions.

Past studies show that woody fuel consumption averaged 24 percent less on units yarded to 6 inches x 6 feet, and 44 percent less on units yarded to 4 inches x 4 feet when compared to units yarded to 8 inches x 10 feet.²

The advantages of intensive yarding would be to decrease the amount of burning and increase the amount of planting spots. In addition, depending on the chip market or cogeneration plants, a return could be made on the biomass.

Disadvantages to this type of system are the increased landing sizes and road systems needed to support this operation and the increased expense of yarding. In addition, unstable chip prices make it difficult to predict if the increased utilization could make it pay for itself. The hog fuel and co-generation markets tend to be driven by the price of other existing energy sources.

Intensive utilization on human health effects is basically increased exposure of logging crews to the hazards inherent with logging.

III. Chemical (Site Preparation and Release)

The use of herbicides to control vegetation.

Description: Herbicides may be used in a variety of areas to control competing and unwanted vegetation. All herbicides used must be registered by the U.S.

² D.V. Sandberg, paper presented to the Air Quality Panel at The Bioenergy Seminar, Portland, Oregon, May 10-11, 1984.

Environmental Protection Agency. Treatments are made within the manufacturers' label restrictions and agency administrative directions. Herbicides are applied with four different techniques.

- A. Aerial application, using helicopter or fixed-wing aircraft.
- B. Mechanical equipment, using truck-mounted wand or boom sprayers.
- C. Backpack equipment, generally a pressurized container with an agitation device.
- D. Hand application by injection, daubing cut surfaces, and ground application of granular formulation.

Advantages of herbicide application is the ability to target vegetation growth patterns (periods when the target species are susceptible and the crop species is not), and the low impact to soil surfaces. In addition, aerial applications can be very cost efficient, through treatment of large acreages in a short time period. The other three alternatives have the advantage of being a highly selective treatment.

Disadvantages of herbicide treatment include:

- A. Planting can be more expensive amid chemically killed brush.
- B. Does not expose mineral soil necessary for natural or artificial seeding.
- C. Herbicides may not be acceptable near environmentally sensitive areas.
- D. Animals move about freely under sprayed brush where they are protected from predators.
- E. Increased monitoring for drift and impact on water.
- F. The possibility of a chemical spill.
- G. Herbicides do little to control wildfire risk, they do not reduce fuel loadings.

Human health effects, in conjunction with the application of herbicides, deal with the amount of exposure the workers have in mixing and applying the herbicide, and for the public in the chance that they might be exposed during an herbicide application. The amount of adverse health effect that either of these two groups could experience would depend upon the toxicity of herbicide, concentration, and length of exposure. Generally, the human health risk is very low when herbicides are properly used.

Chemicals for site preparation and release have not been an alternative that has been available for federal agencies since 1983 due to a district court injunction. This has led to a much greater dependency on other alternatives.

IV. Manual/Hand Labor

Description: Creating planting spots by hand, or hand piling slash. In addition, using equipment, such as power saws, to achieve release objectives. Competing brush is cut, allowing the crop tree more space and resources to grow. Hand girdling (removing a band of bark from around the stem) is occasionally done for conifer release.

The advantage of hand methods is their specificity and low impact on the soil surface. Site specific areas can be targeted. In riparian areas, and sites with sensitive plants, hand methods assure that only target species are treated.

The major disadvantages of manual methods are their lower production rates, higher costs, and re-sprouting. In addition, manual methods require extensive human exposure to potentially dangerous working conditions. Manual methods have been very ineffective in the most productive sites and with certain brush species, due to re-sprouting and high costs.

Adverse health effects of manual methods include working on steep slopes with poor footing, in dense or tall brush, and exposure to exhaust and gas vapors. Chain saws are dangerous if used unsafely. Workers also face a greater exposure to the risk of being cut and the exposure to poisonous plants, snakes and insects.

V. No Treatment

Description: No treatment would consist of not using any of the available alternatives for site preparation after harvest. Units would be harvested and reforested either naturally or by planting.

Advantages to this alternative are lower costs, as long as successful regeneration results. In the eastern part of the State, some sites, are quite suitable for this alternative. This works well in parts of western Oregon also, depending upon the site, the competing brush and the amount of slash.

Disadvantages to this treatment, are heavy slash accumulations leading to increased unhealthy forests, wildfire hazards, higher planting costs, increased unfavorable animal and insect habitat.

Table 3 shows the potential impact of the different site preparation alternatives on air, soil, health and wildlife as well as the percent slope and a cost comparison.

Site Preparation Alternative Evaluation

| Site Prep. Method | Air Quality Impacts | Soil Quality Impacts | Max. % Slope | Cost | Health | Wildlife |
|------------------------|---------------------|----------------------|--------------|------|--------|----------|
| Prescribed Burning | Mod | Low | Any | Mod | Low | Low |
| Mechanical for Burning | | | | | | |
| Tractor | Mod | Mod | 35% | Mod | Low | Low |

| | | | | | | |
|------------------------|-----|-----|-----|------|-----|-----|
| Excavator | Mod | Mod | 50% | Mod | Low | Low |
| Excavator* | Mod | Low | Any | High | Low | Low |
| Mechanical Non-Burning | | | | | | |
| Tractor | Low | Mod | 35% | Low | Low | Low |
| Excavator | Low | Mod | 50% | Mod | Low | Low |
| Chipper** | Low | Mod | 50% | High | Low | Low |
| Manual | Low | Low | Any | High | Mod | Low |
| Chemical | Low | Low | Any | Low | Low | Low |
| Utilization | Low | Low | Any | High | Low | Low |

*Walking excavator **Tractor-mounted in-unit chipper

VI. Current Use of the Alternative Methods

Currently portions of all four alternatives are being used successfully to meet site preparation and release objectives under the appropriate biological and operational conditions. The exceptions are the walking excavator and co-generation, for reasons already explained.

Seven factors influence choice of site preparation methods:

- A. The nature of existing ground cover.
- B. Physical site factors.
- C. Site preparation requirements.
- D. Available manpower and equipment.
- E. External constraints.
- F. Environmental impacts.
- G. Costs.

One or two of these may dominate and dictate a specific choice of method, but all seven should be considered before a treatment is prescribed.

Mechanical

The use of machine piling, mowing, disking, and crushing can be effective on relatively gentle terrain slopes of less than 25 to 35 percent). This method is principally used for site preparation after logging or for site conversion.

Track-mounted excavators are currently in use on slopes of 50 percent or less. The machine is being used to pile, mow and scalp for planting spots. This method is principally used for site preparation after logging.

Manual

Hand felling, girdling, grubbing, pulling, and scalping have proven effective when applied in the appropriate circumstances. For the USFS, manual release methods have become increasingly important since the 1983 U.S. District Court injunction on herbicide use within the Pacific Northwest Region. Manual methods have been most effectively used in moderately severe competition vegetation types.

Herbicides

Herbicides are currently being utilized in reforestation programs statewide. Herbicide need and effectiveness is greatest where competing vegetation is a major factor limiting reforestation. Determining chemical treatment requires consideration of several factors: the most effective herbicide or combination of herbicides, the rate or amount of active ingredient to be applied, season of application and type of equipment to be used.

Intensive Utilization

Currently intensive utilization is being used in some areas where equipment exists for mechanized processing on unit landings. Operations which operate whole tree processors that manufacture logs on the landings are shipping logs down to a 2-inch top. This material is then being processed into chips or hog fuel. Intensive utilization, on a broad scale, is already occurring. The amount of fiber removed from harvest areas is significantly more than it was in the past.

Combinations of Methods

Several combinations of all of the above methods, including burning, are being used to effectively meet silvicultural objectives:

1. Machine piling of logging residues and fuels, followed by burning of the piles.
2. Machine crushing or chaining, followed by broadcast burning.
3. Aerial herbicide use to desiccate or kill vegetation, followed in two to six months by broadcast burning.
4. Hand felling of hardwoods or large woody shrubs, followed by burning.

5. Hand felling and daubing of cut surfaces with systemic herbicides.
6. Hand cutting of large stems and injection of a systemic herbicide for translocation to the root system and aerial parts of the plant.
7. Intensive yarding of logging residue and aerial application of herbicides.

APPENDIX 9: Procedure for Exempting Eastside Forest Health Burns From the Requirement for Emission Reduction

Nearly one hundred years of fire suppression has had unintended consequences for eastern Washington forests. Natural low intensity ground fires that once occurred at 5- to 15-year intervals on drier sites have been effectively excluded from the ecosystem. These fires kept forest fuel levels low and favored open stands of fire-resistant seral species like ponderosa pine and larch over more shade tolerant climax species like Douglas fir and grand fir. This has resulted in a large scale conversion of eastern Washington forests to dense stands of trees that are not fire-resistant and are highly susceptible to catastrophic loss by insects, disease and wildfire.

The Washington Legislature has recognized that fire must be reintroduced into these areas to reduce the risk of catastrophic loss over the long term. In 1995, the Legislature amended the Clean Air Act to exempt "emissions from silvicultural burning in eastern Washington that is conducted for the purpose of restoring forest health or preventing the additional deterioration of forest health" from the reduction targets of the Clean Air Act.

The following procedures describe:

- How to identify burning which may qualify for exemption from the emission reduction targets for forest health reasons.
- How to request an exemption from the emission reduction targets for a burn.
- The process DNR Regions will use to review requests for exemption from the emissions reduction targets.

I. Forest Health Conditions That May Qualify for Exemption

- Species Composition:** Control species composition to favor the creation and maintenance of stands of fire-resistant seral tree species over climax species.
- Stand Density:** Control of stand density to favor more open fire-resistant and healthy stands over dense, overstocked stands subject to drought stress, insect and disease infestation and high intensity fire.
- Natural Fuels Build-Up:** Control of fuels build-up due to natural processes and not a direct result of management activities.
- Insect and Disease:** Control or prevention of insect or disease outbreaks.
- Restore Natural Processes:** Correct the interruption of natural ecological process caused by the exclusion of fire in fire-dependent ecosystems.

II. Types of Burning Qualifying for Exemption

- A. Underburning.
- B. Prescribed stand replacement fire not directly associated with a timber harvest.
- C. Burning conducted as part of a project designed for forest health and not primarily as a commercial activity.
- D. Burning of piled ponderosa pine slash created between January and June to prevent bark beetle outbreaks when no alternatives are available.

III. Alternatives to Forest Health Burning

Fire is not the only appropriate method of restoring forest health in every situation. Often, stands are so dense and fuel loads are so high that fire is not an option.

Biomass removal instead of, or in combination with burning are effective in decreasing smoke emissions by reducing fuel loading and decreasing the need for burning.

Mechanical treatments such as thinning reduce the need for burning and allow for better control of emissions when burning is used.

Timing of harvest to avoid creating concentrations of ponderosa pine slash during January through June is effective in preventing bark beetle outbreaks.

Alternatives to burning provide opportunities for improving forest health by reducing fuel loading and creating opportunities to reintroduce fire into the ecosystem.

IV. Submitting Requests for Exemption

Requests for exemption are voluntary. No landowner will be required to request an exemption as a condition of granting a burn permit. Disapproval of a request for exemption will not invalidate a burn permit.

- A. The request for exemption shall consist of a written statement from the landowner covering the following elements:
 - 1. Legal description of the proposed burn.
 - 2. A description of the health situation, forest health objectives and treatments schedule.
 - 3. A brief description of the alternatives to silvicultural burning that could achieve the desired objective.
 - 4. Reasons why the landowner does not believe alternatives to burning are appropriate in this situation.

Requests for exemption should be submitted with the burning permit application. Requests for exemption will not be accepted after burning is completed.

V. Review and Approval of Requests by DNR

General Instructions

The DNR Region will:

1. Review all state and private requests for exemption. The request approval will be based on DNR's determination that the burning is being conducted to restore forest health or prevent additional deterioration to forest health (according to guidelines).
2. The burn permit will be evaluated separately from the request for exemption. Exempted burns must meet all the requirements of the Smoke Management Plan to protect public health, visibility and the environment. The approval of the burn permit will not depend on approval of the request for exemption.
3. Notify the landowner of the approval or disapproval of the request for exemption.
4. Develop a filing system for exemption requests and a method for referencing requests for exemption to burn plans.
5. Assure that the data reporting procedures described in Appendix 2 are followed and that the burn is correctly coded as a forest health exemption burn.
6. Conduct an audit of a representative sample of federal forest health burning exemption requests.

Specific Instructions for U.S. Forest Service Burns

1. Prescribed fire projects funded by a majority of BD funds will not be exempt from the emissions cap. Note: BD funds are funds withheld from timber sale receipts to treat fuels created by harvest activities.
2. The exemption will be determined through planning documents that will indicate forest health exemptions.
3. The U.S. Forest Service or other Federal land management agencies will indicate the projects that are exempt through the current data input system.
4. Projects designated for exempt status may be chosen at random by DNR for validation of exempt status. The U.S. Forest Service or other Federal land management agencies will be requested to provide the documentation that indicated the reason for the designation.

Audit

Burning conducted by federal landowners may not receive on-site inspections by DNR before burning. A representative sample of federal burns requesting the exemption may be audited to assure compliance with these procedures. The audit will include the following elements:

- Review of the request for exemption and any supporting documents for conformity with these procedures.

- Site inspection to determine that the identified health problem exists and that burning will improve forest health or prevent additional deterioration of forest health.
- A determination that the burn does or does not meet the criteria for exemption.

If the auditor determines that the exemption does not apply to a burn the exemption for the burn will be rescinded.

If the audit reveals that the landowner has systematically inappropriately applied the exemption, the landowner's total exempted burning emissions will be adjusted by the proportion of the audited burns that have the exemption rescinded.

Examples:

- A. The landowner requests the exemption for forty burns. Ten are audited. One request for exemption is determined to be invalid. The exemption is rescinded for that one burn.
- B. The landowner requests the exemption for forty burns. Ten are audited. Three requests for exemption are determined to be invalid. It appears the landowner has inappropriately applied the exemption. Thirty percent of the audited burns are not entitled to the exemption. The total exempted emissions are reduced by 30 percent.

VI. Public Notification

Acceptance of forest health burning will depend on educating the public about the reasons for forest health burning and notifying the local community when forest health burning is to occur. Upon approval of the request by DNR and before burning, the landowner is encouraged to notify the public in the vicinity of the burn of the general location and approximate time of ignition.

VII. Annual Review

The success and credibility of the Smoke Management Plan depends on the responsible and justifiable use of the forest health burning exemption. Interested members of the Smoke Management Plan Advisory Committee may meet as needed to review the previous year's forest health burning and to evaluate the success of these guidelines in meeting the intent of the legislation.

APPENDIX 10: Criteria for Defining Low Risk Areas

Background

The threshold for a large burn requiring smoke management approval has been set at 100 tons since the first smoke management plan was developed in 1970. Over time this threshold has proven to be adequate for broadcast burns. The 100-ton threshold has had some unintended consequences for pile burning. Landowners can burn large acreages of piles in less than 100 ton segments over many days without smoke management approval. This is not possible with most broadcast burning because they are usually greater than 100 tons and units cannot usually be segmented. The result of segmenting pile burn units is that a unit that would have been burned in one day with the smoke dispersed in one day may be burned over several days with local smoke impacts lasting for days. Segmenting also leads to an increased risk of wildfires when the piles being burned are next to unburned piles in the same unit.

When the 100-ton threshold was established, most large burns were broadcast burns. Pile burning produces less emissions per ton of debris than broadcast burning. In terms of PM₁₀ particulate emissions, a pile burn produces only 38% as much PM₁₀ per ton of fuel as a broadcast burn.³

The practice of segmenting pile burn units creates administrative problems for DNR. Currently a landowner may burn as many under 100-ton segments at one time as they wish, while larger burns may only be burned with smoke management approval. The result is that more burning may occur when large burns are disapproved than when a large burn is approved. Additionally, it is not practical for DNR to track where and when each of these small segments are burning on any given day. In some remote areas pile burns up to 300 tons have negligible impact and are virtually always approved. In these areas the smoke management approval process represents an unnecessary regulatory requirement.

Purpose

The purpose of this procedure is to define low risk areas where the threshold of burning requiring smoke management approval can be set to 300 tons of piled debris per landowner within a DNR district.

³ Source: Compilation of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources.

Low risk areas are remote areas, and areas generally above where the terrain and atmosphere interact and a different threshold for large burns will be applied. In these areas a private landowner may burn up to 300 tons of piled debris total per day on their ownership within a DNR district without smoke management approval, subject to the conditions of their written burn permit or restrictions recorded on the 1-800 information line. On federal lands, a land manager may burn up to 300 tons of piled debris total per day within a ranger district without smoke management approval subject to restrictions recorded on the 1-800 information line.

DNR Regions will define the low risk areas using the criteria described in this Appendix.

In all other areas the threshold for large burns requiring smoke management approval will remain at 100 tons per burn.

Goals

The Goals of this procedure are to:

- Reduce the incentive to divide pile burns into under 100-ton segments.
- Obtain better control of the amount of burning occurring in an air shed under less than optimal conditions.
- Eliminate an unnecessary regulatory requirement.

Criteria

These criteria are general guidelines for defining remote areas where the threshold may be raised to 300 tons per ownership. Regions are expected to use their judgment and local knowledge when mapping low risk areas.

- **West of Interstate 5:** Low risk areas will be at least five miles from the nearest community.
- **East of Interstate 5:** Low risk areas will be at least 1,000 feet above major valley bottoms. This will be approximately 1,500 feet elevation in the west slopes of the Cascades, and 3,000 feet elevation in eastern Washington.

APPENDIX 11: Pre-Burn Season Outreach Plan

Pre-Burn Season News Releases

- **Purpose/Message:** Inform public, agencies, and others with interest in planned burn activities before each burn season. Post-season news release can list accomplishments, successes, number of smoke-free days, etc. Remind people of other information sources (phone line, daily emails, website, Twitter, etc).
- **Scope:** Line officer, district employees, internal public affairs staff, WA DNR
- **Timing:** One article before spring and fall burn seasons; another article at the end of each burn season.

Pre-burn Phone Calls

- **Purpose/Message:** Notify project-specific interested parties of planned prescribed burn activities in their immediate area. Includes calls to county sheriff, DNR, district fire chiefs, and people on general and area-specific notification list.
- **Scope:** Per burn plan and/or NEPA analysis for each unit.
- **Timing:** Within a few days prior to ignition. Consider making post-burn calls to people with health concerns who may have been affected by smoke to gauge effects of smoke, actions taken by individual, etc. This information can be used to inform decisions on future burning in that area during the same season or in the future.
- **Who:** Fuels Analyst/Burn planner/AFMO Fuels update call list; Burn Boss or designee makes calls

Daily/Weekly Emails and/or Social Media notifications

- **Purpose/Message:** BRIEFLY inform interested parties about planned and ongoing burn & patrol activities as needed through the week during burn seasons. Possible information may include list planned burn units, location and duration/area of expected smoke impacts; hazards; status of units already burned; any closures, etc. Include any relevant information on planned, current, or lingering smoke impacts, and actions we're taking to minimize them. Invite public to visit a burn-in-progress. Can include photos from recent burns. If a smoke impact occurred from burn, describe why we think it happened and what actions were taken to minimize it, and when we think the impact should dissipate. Can inform about planned burns that were approved at the state level but not started because of our air quality concern.
- **Scope:** Same scope as Pre-burn Phone Calls
- **Timing:** Beginning and end of each week and during week as needed depending on amount of activity and impacts.
- **Who:** DNR Region staff, USFS line officers, relevant industry staff.

APPENDIX 12: Class I Federal Areas

