

## Recognizing optimum conditions and maximizing/creating opportunities

### Background

The extensive 2002-2005 Oregon Department of Forestry (ODF) Smoke Management Review recommendations were predicated on a key foundational principle incorporated in the overarching Program Goal:

“To provide maximum opportunities for land management objectives to be met while maintaining air quality, health standards and visibility objectives. Burning can be managed more effectively with improved coordination, communication, technology, public education, increased utilization of forest fuels and *maximizing burning during optimum burning conditions whenever possible.*”

The Smoke Management Review Committee’s intentions were to:

1. Provide air quality protection designation to Smoke Sensitive Receptor Areas (SSRAs), thus adding protection to a larger number of communities, and,
2. Increase opportunities for forestland burning objectives to be met whenever conditions warrant. To accomplish this aim, ODF implemented a new strategy that removed previous tonnage restriction limits. This enabled landowners to capitalize on optimum burning conditions whenever they occur.

These “optimum burning conditions” came to be known and referred to as “Best Burn Day” strategy (BBDS). In the six years since the Smoke Management Program changes were made, it has become clear that the mutual goal of that statement is effective. But for some landowners, burn bosses, district administrators and Salem forecast staff, the term held varying meanings. There was never an intention to suggest that when the winds are blowing and providing good mixing, a landowner has a free pass to ignite anything s/he chooses.

This document clarifies Review Committee intent and underscores planning, preparedness and communication as the critical tools in prescribed burning decisions. Collective local knowledge and experience, coupled with improved forecasting technology, can further enhance program accomplishments. When these elements come together, landowners enhance their ability to recognize daily conditions and seize opportunities. *In sum, success comes about through a shared and collective responsibility among landowners, district and Salem staff, and cooperating agencies.*

### Process

A workgroup under the direction of the Smoke Management Advisory Committee (SMAC) was tasked with reviewing initial BBDS implementation and recommending adjustments and clarification. The aim: By offering more clarity and suggested guidance to help attain both program goals (air quality and forest management objectives), landowners could achieve the envisioned maximum operations during optimum conditions.

It became evident to the work group that members shared certain principles or values to:

- Safely accomplish burns
- Minimize smoke impacts to populated areas and SSRAs
- Continue to guide the burning program through general policies matched with local conditions to assure success
- Avoid significant and repeated intrusions, which could lead to loss of the social and political “license” to burn
- Require a successful enhanced smoke program, with the understanding that it is essential for prosperous forest management

The “Best Burn Day Strategy” is a concept to allow burning as much pre-registered material as possible on days that provide the best mixing and dispersion. It was adopted in 2005 to help reduce the amount of burning necessary on marginal days when a higher likelihood of smoke intrusions exists. The strategy reduces the possibility of intrusion and can decrease landowner costs from repeated unit visits.

This strategy is intended to allow burning more tonnage and on more closely spaced units than in previously written instructions (pre-2005), in instances when local conditions differed from general area forecasts. However, it requires good pre- and daily planning, communications and cooperation among landowners, district personnel and Salem forecasters.

Initial implementation of the new 2005 rules employed a forecast “matrix” developed to give specific guidance and understanding of allowable tonnage under various weather conditions. As the former tonnage limits were removed, the matrix replaced the phrase, “Follow the standard guidance in the Oregon Smoke Management Plan.” While helpful, it seems to have perpetuated an implied ceiling, or upper limit, on acres and tonnage. The workgroup believes this was not the intention but rather an outcome of well-meaning attempts to balance hazards and risk.

A more appropriate methodology, or guidance, might be entitled, “Recognizing optimum conditions and maximizing and creating opportunities.” Each component of a successful burn operation - technology, general forecast, local conditions, unit layout, experience and skills of burn boss, and district relationships - can contribute to the overall success of the program.

Individual landowner and program success takes both planning and communication from the landowner to burn boss, to the district burn coordinator, to the smoke management forecaster. Any planned burn will benefit from the revised guidance in this document as a tool to optimize burning opportunity.

At the optimum level, several things must occur:

1. Early communication between landowners and the district staff to clarify roles in the burn approval process, where to elevate issues, registration, identification and prioritization of burn units. This might include consideration of the company unit logging plan.
2. Familiarity of district personnel with planned units and local conditions affecting smoke dispersal, control issues, burn boss experience, and crew skills and abilities.
3. Communication and coordination between landowner/burn boss and district to plan next-day burns. Coordination and approval should occur between district and Salem forecaster if landowner seeks a local waiver to instructions. Units that might need a waiver should be pre-identified and planned for in advance. Waivers are only necessary when requesting additional burn approval above the general forecast instructions.
4. Reporting actual field conditions, smoke transport and dispersal on burns is critical, if the operator intends to go to another unit or burn more tonnage on an existing unit. Communication between the landowner or representative, the district and Salem forecast center regarding local conditions, and expected smoke dispersal and transport direction, is essential to determine whether to allow more tonnage on an existing unit or another unit.
5. Salem forecasters can help by *clearly* identifying in the daily forecast when possible noteworthy burn opportunities may occur.

The workgroup has identified several key factors for consideration by each responsible party to improve landowner and smoke management program success.

## **Forest Landowners**

### **Unit Layout**

If possible, the strategy for success should start with harvest unit layout:

- Consider aspect
- Consider ways to lay out unit using ridges, draws or changes in fuel type

- While there may be savings in harvest costs with multiple units in a single area, consider fewer units in proximity to difficult burning locations in the same year or harvest cycle
- Adjust unit size to maximize burn opportunities
  - Compartmentalize as appropriate for the site or for cost-effectiveness
- Consider the resources to be burning against, such as timber, reproduction, old slash or adjacent landowners/neighbors
  - Plan and communicate accordingly
- If prevailing winds will likely be a problem, communicate with district for prioritization in a rare wind shift opportunity (add to priority list)

*NOTE: Compartmentalizing obviously increases cost to the landowner. This guidance is not intended to suggest that all units be compartmentalized, especially those with no influence on SSRAs. But when a unit is located in an area where it has traditionally been difficult to meet air quality regulations, or where topography makes control a concern, internal unit compartmentalizing may improve results and reduce risk.*

### **Early Registration & Planning**

- Make sure notifications, written burn plan if needed, and smoke management registration are submitted well in advance (preferably a month before burn opportunities may occur)
- Submit accurate fuel tonnages on registration form to calculate consumption precisely
- Communicate to the district coordinator the prioritization of units
- Identify all obstacles to burning, such as: SSRAs, corridors, sensitive communities, sensitive neighbors, protected resources, areas where holding boundaries may be difficult, et al

### **Plan for window of opportunity well in advance of the intended burn day**

Most units have a preferred window of opportunity to meet the landowner's objective. Some may have an extremely narrow window. The forecasted weather and allowable burn tons on a given day are the two key limiting factors.

Weather is a variable beyond control, so work with tonnage.

- Reduce consumable tonnage if necessary due to historically rare or difficult burn opportunities through these methods
  - Divert to biomass
  - Split unit for multiple entry
  - Reduce unit tons by burning south aspects in winter or early spring
  - Use both pile and broadcast burning
  - Burn landings and piled tons during rains to reduce broadcast tons
    - Cover piles to increase opportunities and reduce emissions
- Prep burn unit as needed prior to burn day (e.g. fire trails, pull back, notify neighbors or adjacent landowners)
- Track forecasts, monitor fuel moistures, and then notify district when fuels are close to prescription

### **Coordination and communication with the burn boss – Planning for the day**

Coordination begins with the burn boss and the district burning coordinator, who then works with the smoke management forecaster. This coordination is especially critical when burn tonnage is greater than the allowable daily forecast tonnage, or the burn is to occur in an area where smoke can be a public health/visibility issue (SSRA).

- Watch for forecasted weather patterns consistent with objectives
- Watch smoke management daily forecasts
- Monitor fuel conditions (too wet/too dry)
- Contact district burning coordinator well ahead of planned burn, particularly if this is a priority burn (narrow window), as the burning coordinator must prioritize all burning on the district

- Discuss units in detail with district coordinators so they understand the concerns that may alter the priority of the unit and landowner objectives
- Consider:
  - Neighbors – Will good dispersal for more than one day be needed?
  - Property lines
  - Location relative to SSRAs
  - Consumable tons vs. gross loading tons
  - Elevation
  - Adjacent risk factors
- Ask questions and define expectations in advance
  - Can part of the unit be burned, and then the rest later (that day) if smoke transport is favorable?
  - Can the approved tonnage be exceeded slightly if ignition is completed by a specific time? (For speed, consider aerial ignition or use of a larger crew)
  - If burning up to the instruction limit is not allowed, identify where to direct a request for reconsideration.
  - If a waiver may be sought to burn additional tonnage, identify in advance where to direct the request
  - Establish communication plan with district for approval of additional tonnage

### **Day of Burn**

- Be fully prepared to burn when given the OK, as this may be the only opportunity
- Line up resources for marginal opportunity in which approval to burn may be granted
- Have enough resources to quickly, efficiently and safely ignite the complete unit
- On a marginal day, be prepared to launch balloons from the unit to help determine if a burn opportunity exists and to verify forecast accuracy
- Identify road or fire line within the unit that would allow operator to safely halt ignition if necessary
- Have someone with a vehicle and communications, not tied to the operation, track and communicate smoke observations to ensure it is traveling in a forecasted direction and dispersing favorably
- Before asking for additional approval, determine whether the necessary resources to ignite and hold unit(s) are in place
- Would rapid ignition by helicopter be cost effective and influence burn approval?
- Be prepared to move to a difficult unit for burning if conditions allow

### **District Coordinators**

- Encourage early registration and prioritization by landowners
- Maintain tracking system for priority units that recognize/reward efficient planning
- Be available to coordinate and facilitate response or request for additional tonnage
  - Advocate for approvals if local knowledge contradicts the forecast instructions
- Communicate to burners on days that may allow greater tonnage so they can be prepared with additional resources to maximize opportunity

### **Salem Smoke Management**

- When noteworthy opportunities (excellent mixing or favorable wind directions) are anticipated, in previously specified areas, clearly identify and communicate the potential for increased ignitions or tonnage in the daily forecast
- Provide clear guidance of how matrix is intended to work (flexibility for lower or higher tonnage based on conditions) within forecast
- Maintain familiarity with operational situations and fuel configurations through aerial monitoring, and district and landowner visits to planned units and unit ignitions
- Monitor forecasts, weather conditions, and smoke conditions to allow additional tonnage if warranted
- Maintain and encourage communication among districts, Salem, landowners and burn bosses to ensure maximum burning opportunities

- Maintain an open environment for inquiries or suggestions to ensure a successful program
- Utilize local knowledge of district staff and burn bosses

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