



Oregon Department of Environmental Quality
July 18, 2018

Notice of Proposed Rulemaking

Amendments to Oregon Smoke Management Plan and the Oregon State Implementation Plan for Air Quality

Table of Contents

Introduction	2
Brief history	3
Overview	7
Statement of need.....	11
Rules affected, authorities, supporting documents	12
Fee Analysis	13
Statement of fiscal and economic impact.....	14
Federal relationship	16
Land Use	17
Stakeholder and public involvement	18
Public notice and hearings.....	19
Draft Rules - With Edits Highlighted.....	23
Draft Rules – With Edits Incorporated.....	24
ODF Draft Rules - With Edits Highlighted	25
ODF Fiscal Impact Statement.....	57
DIRECTIVE 07/14 1-4-1-601 - OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM.....	59

Introduction

The comment period for this rulemaking has been extend until 4 p.m., Sept. 14, 2018.

DEQ is seeking comments on proposed amendments to the Oregon Smoke Management Plan, operated by the Oregon Department of Forestry, and Environmental Quality Commission adoption of these amendments into the Oregon Clean Air Act State Implementation Plan, as a revision to OAR 340-200-0040. Associated with this proposal, DEQ is proposing to approve these plan amendments under ORS 477.013 and to submit them to EPA to be incorporated into the federally-approved SIP.

Background

The Oregon Department of Forestry (ODF) and DEQ recently reviewed the Oregon Smoke Management Plan to evaluate the effectiveness of the smoke management program. As a result, ODF and DEQ are proposing changes to the plan under their respective authority:

- ODF is proposing amendments to their smoke management rules under OAR 629-048 and Operational Guidance for the Oregon Smoke Management Program, directive 1-4-1-601, which together comprise the plan.
- To incorporate ODF's amendments into the federally approved Oregon Clean Air Act State Implementation Plan, DEQ proposes amending OAR 340-200-0040.

Short summary

About every five years, ODF conducts a periodic plan review with an advisory committee and DEQ participation. The advisory committee met five times during 2017 and 2018. Main elements of Committee recommendations and input from the ODF Board of Forestry are the basis for ODF's proposed amendments to the Oregon Smoke Management Plan:

1. Edits to the language of the Smoke Management Plan Objectives;
2. Revisions to the definition of smoke intrusion (OAR 629-048-0005) to include a one-hour threshold at or above 70 ug/m³ and a 24 hour average at or above 26 micrograms per cubic meter, measured midnight to midnight on the first day of smoke entrance into a community;
3. Adding a "Smoke incident" definition;
4. Inclusion of a Community Response Plan and Exemption Request;
5. Modify the Special Protection Zone (SPZ) requirements for Medford, Lakeview, Klamath Falls, and Oakridge area to better fit the natural ridgelines and features of the areas;

6. Adding an alternative to burning recommendation of removing or minimizing large fuel concentrations and heavy fuel loadings;
7. Allow increased usage of polyethylene sheeting on burn piles by removing the size limitation and allowing the size of the sheeting to vary as necessary to achieve rapid ignition and combustion. A study of the emissions resulting from burning a wet forest biomass pile and a similar one covered with a polyethylene sheet showed the emission levels from combustion of the piles to be less when the pile was well covered and a portion dry than from the non-covered pile.
8. Other miscellaneous revisions to ODF rules governing the Oregon Smoke Management Plan.

Brief history

ODF conducts prescribed forest burning in Oregon to eliminate unwanted forest debris, restore forest health, and reduce the potential for major wildfires. Smoke from this burning can occasionally pose a risk to public health and result in air quality levels exceeding the federal air quality standard for fine particulate matter also called PM2.5. Even brief exposures to smoke can cause health problems for persons with asthma, emphysema, congestive heart disease and other existing medical conditions. The elderly, pregnant women and young children are especially high-risk groups.

State law ORS 477.013 directs ODF to develop a smoke management plan for prescribed forestry burning in Oregon and to promulgate rules to carry out this plan. Consistent with the law, ODF developed the Oregon Smoke Management Plan, which consists of rules under OAR 629-048 and the Operational Guidance for the Oregon Smoke Management Program in directive 1-4-1-601. The objective of the smoke management program is to maximize burning opportunities, reduce the risk of wildfire, and minimize smoke impacts on the public.

As directed under state law, ODF adopts all rules associated with the plan through their Board of Forestry. State law ORS 477.013 does provide DEQ with joint approval authority of the plan and cites the need to “meet the air quality objectives of the federal Clean Air Act”. To ensure prescribed burning meets the federal Clean Air Act, DEQ previously adopted the plan into the Oregon Clean Air Act State Implementation Plan as provided in DEQ rule OAR 340-200-0040, and any changes to the Oregon Smoke Management Plan require DEQ approval as a State of Oregon Clean Air Act Implementation Plan revision.

ORS 477.552 states the need to “improve the management of prescribed burning as a forest management and protection practice” and to “minimize emissions from prescribed burning consistent with the air quality objectives of the federal Clean Air Act and the State of Oregon State Implementation Plan.” In order to improve the management of prescribed burning, every five years DEQ and ODF conduct a review of the plan to evaluate the effectiveness of the smoke

management program and modify rules as appropriate.

More information

Information about this rulemaking is on this rulemaking's web page: [Smoke Management 2018](#)

Public Hearings

DEQ will hold public hearings on this rulemaking as detailed below.

How to comment on this rulemaking proposal

DEQ is asking for public comment on the proposed rules. Anyone can submit comments and questions about this rulemaking. A person can submit comments through an online web page, by regular mail or at the public hearing.

Comment deadline

DEQ will only consider comments on the proposed rules that DEQ receives by 4 p.m., on September 14th.

Submit comment online

[Smoke Management 2018 Comment Page](#)

Note for public university students:

ORS 192.501(29) allows Oregon public university and OHSU students to protect their university email addresses from disclosure under Oregon's public records law. If you are an Oregon public university or OHSU student you may omit your email address when you complete the online form to submit a comment.

By mail

Oregon DEQ
Attn: Rachel Sakata
700 NE Multnomah St., Suite 600
Portland, OR 97232

At hearings in August 2018 at the following locations

DEQ invites you to attend one of the public hearings listed below. The presiding hearing officer will provide a brief presentation of the proposal before inviting your spoken or written comment.

August 21st, 7 PM – 8:30 PM
OSU Extension Service Meeting Room
10507 N. McAlister Rd., La Grande

August 22nd, 7 PM – 8:30 PM
Deschutes County - Deschutes Services Center
Barnes and Sawyer Room
1300 NW Wall St, Bend

August 23rd, 7 PM – 8:30 PM
Oregon Institute of Technology Campus,
CU, Mt Thielsen Room,
3201 Campus Dr., Klamath Falls

August 28th, 7 PM – 8:30 PM
DEQ Office, Willamette Conference Room,
165 East 7th Avenue, Suite 100, Eugene

August 29th, 7 PM – 8:30 PM
Smullin Health Education Center
2825 E Barnett Rd, Medford

Teleconference Call-in Number: 888-278-0296
Teleconference Participant ID: 8040259

Sign up for rulemaking notices

Get email or text updates about this rulemaking by signing up through this link:
[Smoke Management 2018 Rulemaking Email List](#);

or on the rulemaking web site: [Smoke Management 2018](#).

Get email or text updates about other, future DEQ rulemaking by signing up through this link:
[DEQ Email Notice List](#).

What will happen next?

DEQ will include a written response to comments in a staff report DEQ will submit to the Environmental Quality Commission. DEQ may modify the rule proposal based on the comments.

Present proposal to the EQC

Proposed rules only become effective if the Environmental Quality Commission adopts them. DEQ plans to present the proposed rules to the commission for a decision or information at its meeting in January 2019 meeting.

Accessibility information

You may review copies of all documents referenced in this announcement at:

Oregon Department of Environmental Quality
700 NE Multnomah St., Suite 600
Portland, OR 97232

To schedule a review of all websites and documents referenced in this announcement, call Rachel Sakata, Portland, at 503-229-5659 (800-452-4011, ext. 5622 toll-free in Oregon).

Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact DEQ,

Portland, at 503-229-5696 or call toll-free in Oregon at 1-800-452-4011, ext. 5696; fax to 503-229-6762; or email to deqinfo@deq.state.or.us. Hearing impaired persons may call 711.

Overview

Short summary

DEQ proposes the Oregon Environmental Quality Commission approve the proposed rules for incorporation into the Oregon Clean Air Act State Implementation Plan and submittal to the U.S. Environmental Protection Agency for its approval under the federal Clean Air Act.

History

ODF conducts prescribed forest burning in Oregon to eliminate unwanted forest debris, restore forest health, and reduce the potential for major wildfires. Each year the ODF burns approximately 150,000 acres of Oregon forests through the practice of prescribed burning. Smoke from this burning can occasionally pose a risk to public health and result in air quality levels exceeding the federal air quality standard for fine particulate matter also called PM2.5. Even brief exposures to smoke can cause health problems for persons with asthma, emphysema, congestive heart disease and other existing medical conditions. The elderly, pregnant women and young children are especially high-risk groups. Smoke from forest burning also affects visibility in national parks and wilderness areas, as well as general outdoor recreation activities.

State law ORS 477.013 directs ODF to develop a smoke management plan for prescribed forestry burning in Oregon and to promulgate rules to carry out this plan. Consistent with the law, ODF developed the Oregon Smoke Management Plan, which consists of rules under OAR 629-048 and the Operational Guidance for the Oregon Smoke Management Program in directive 1-4-1-601. ODF implements the plan through a smoke management program for prescribed burning on federal, state and private forestland.

Adopted as a regulatory program in 1972, the objective of the smoke management program is to maximize burning opportunities, reduce the risk of wildfire, and minimize smoke impacts on the public. Most of the larger cities and heavily populated areas in Oregon are designated as Smoke Sensitive Receptor Areas by ODF, and have greater restrictions on prescribed burning to prevent smoke intrusions. ODF's smoke management office in Salem conducts daily weather forecasts to determine areas in the state suitable for forestry burning, then issues daily burning instructions for those areas, that include size limits in tons, how far apart to space the burning and distance from Smoke Sensitive Receptor Areas. The forest district level makes the actual decision on which units to burn based on the burning instructions. Each burn unit has a burn plan and pays burn fees. After burning, the district reports back to State Forestry in Salem on the burning accomplished.

As directed under state law, ODF adopts all rules associated with the plan through their Board

of Forestry. State law ORS 477.013 does provide DEQ with joint approval authority of the plan and cites the need to “meet the air quality objectives of the federal Clean Air Act”. To ensure prescribed burning meets the federal Clean Air Act, DEQ previously adopted the plan into the Oregon Clean Air Act State Implementation Plan as provided in DEQ rule OAR 340-200-0040, and any changes to the Oregon Smoke Management Plan require DEQ approval as a State of Oregon Clean Air Act Implementation Plan revision.

ORS 477.552 states the need to “improve the management of prescribed burning as a forest management and protection practice” and to “minimize emissions from prescribed burning consistent with the air quality objectives of the federal Clean Air Act and the State of Oregon State Implementation Plan.” In order to improve the management of prescribed burning, every five years DEQ and ODF conduct a review of the plan to evaluate the effectiveness of the smoke management program. The last plan review was in 2012.

Regulated parties ODF’s proposed rulemaking primarily affects private forest landowners, and state and federal land managers who conduct prescribed burning under the Oregon Smoke Management Plan. DEQ’s proposed amendment to OAR 340-200-0040 incorporates ODF changes into State of Oregon Clean Air Act Implementation Plan, and does not change the regulated parties.

Proposed Amendments to the Oregon Smoke Management Plan under ODF Rule OAR 629-048

About every five years, ODF conducts a periodic plan review with an advisory committee and DEQ participation. For the most recent review, ODF convened the Smoke Management Review Committee that met five times during 2017 and 2018. Committee recommendations and input from the ODF Board of Forestry are the basis for ODF’s proposed amendments to the Oregon Smoke Management Plan. The ODF proposal is undergoing the opportunity for public review and comment at the same time as the DEQ proposal and through a parallel rulemaking process. Highlights of the Committee’s recommendation and additional recommendations by the Board of Forestry include:

1. Edit the language of the Smoke Management Plan Objectives to read:
 - a. Minimize smoke emissions resulting from prescribed burning as described by ORS 477.552.
 - b. Provide maximum opportunity for essential forestland burning;
 - c. Protect public health by avoiding intrusions;
 - d. Coordinate with other state smoke management programs;
 - e. Comply with state and federal air quality and visibility requirements; and
 - f. Promote the further development of techniques to minimize emissions by encouraging cost-effective utilization of forestland biomass, alternatives to burning, and emission reduction techniques.

2. Revise the definition of smoke intrusion (OAR 629-048-0005) to include a one-hour threshold at or above 70 ug/m³ and a 24 hour average at or above 26 micrograms per cubic meter, measured midnight to midnight on the first day of smoke entrance into a community;
3. Adding a “Smoke incident” definition which means the verified entrance of smoke from prescribed burning into a Smoke Sensitive Receptor Area (SSRA) at levels below a smoke intrusion, other areas sensitive to smoke, or a community other than an SSRA.

4. Inclusion of a Community Response Plan and Exemption Request:

With the potential for an increase in the amount of prescribed burns and resulting smoke impacts to communities, a communication framework to inform vulnerable SSRAs about the impact of prescribed burning smoke and how a community can know when they may be impacted by it. These communities will be encouraged to develop a response plan to notify their citizens of potential smoke impacts and how they can reduce their exposure.

- a. ODF Salem headquarters will develop and distribute a communication framework that will include at least the: (1) purpose and importance of prescribed burning, (2) health risks of wildfire and prescribed fire smoke, (3) how smoke sensitive receptor areas (SSRA designated communities) residents can find out about daily burn plans, and (4) notification of potential prescribed burn smoke impacts.
 - b. ODF and DEQ will recommend that SSRAs which have experienced repeated smoke incidents and intrusions develop a community response plan lead by the local health department, and in coordination with the local ODF or federal forest district office on how to respond when notified that prescribed burning smoke may enter their community.
 - c. Communities that develop a community response plan may request an exemption to the one-hour intrusion threshold through their local governing body and County Commission. The request for exemption will be considered for approval by ODF and DEQ under the advisement of Oregon Health Authority.
5. For Special Protection Zone (SPZ) requirements adopted in 1992 to provide extra smoke management protection during the winter months for communities that exceeded federal air quality health standards:
- a. Modify the SPZ for the Medford, Lakeview, Klamath Falls, and Oakridge area to have the SPZ boundaries better fit the natural ridgelines and features of the areas impacted instead of straight boundaries across the varied landscape. The

proposed revised SPZs will better protect the areas by conforming to the natural boundaries of the respective air basins. Inside the boundary, prescribed burning would continue to follow the daily green, yellow, and red woodstove restrictions. Outside the boundary, prescribed burning would be prioritized to reduce burning on “red” woodstove days, by only allowing smaller burn units that are farther away from the areas.

6. Adding an alternative to burning recommendation of removing or minimizing large fuel concentrations and heavy fuel loadings to minimize smoldering;
7. Allow increased usage of polyethylene sheeting on burn piles by removing the size limitation of 100 square feet and allowing the size of the sheeting to vary as necessary to achieve rapid ignition and combustion of the pile. A study of the emissions resulting from burning a wet forest biomass pile and a similar one covered with a polyethylene sheet showed the emission levels from combustion of the piles to be less when the pile was well covered and a portion dry than from the non-covered pile.
8. Other miscellaneous revisions to the ODF rules concerning the Oregon Smoke Management Plan.

Regulated parties

The proposed amendment of Oregon Administrative Rule 340-200-0040 to incorporate the Oregon Smoke Management Plan into the State of Oregon Clean Air Act Implementation Plan does not change the regulated parties.

Request for other options

During the public comment period, DEQ requests public comment on whether to consider other options for achieving the rules’ substantive goals while reducing the rules’ negative economic impact on business and negative impacts on people in areas of potential exposure to smoke from prescribed fire activities.

Statement of need

What need would the proposed rule address?

The Oregon Smoke Management Plan consists of both ODF-developed rules under OAR 629-048, and guidance under directive 1-4-1-601, Operational Guidance for the Oregon Smoke Management Program. State law (ORS 477.013) requires the plan and any changes to the plan be approved by both the State Forester and DEQ. In order to ensure prescribed burning meets the federal Clean Air Act, the EQC previously adopted the plan into the Oregon Clean Air Act State Implementation Plan (SIP), under OAR 340-200-0040, and EPA incorporated the plan into the federally-approved SIP. When the plan is amended, the EQC must adopt the change into the SIP by amending OAR 340-200-0040. DEQ then would submit this SIP revision to EPA for approval and incorporation into the federally-approved SIP.

How would the proposed rule address the need?

The proposed rulemaking would adopt changes to the Oregon Smoke Management Plan into the Oregon Clean Air Act State Implementation Plan, and thereby meet DEQ's responsibility to maintain compliance with the Clean Air Act.

How will DEQ know the rule addressed the need?

If the EQC approves this rulemaking, DEQ would submit the amended plan to EPA as a revision to the federally approved State Implementation Plan and OAR 340-200-0040. DEQ will know the need has been addressed when EPA reviews and approves the changes to the Oregon Clean Air Act State Implementation Plan.

Rules affected, authorities, supporting documents

Lead division

Air Quality

Program or activity

Planning Section, Smoke Management Program

Chapter 340 action

Amend - OAR

340-200-0040

Statutory authority - ORS

468.020 468A

Statute implemented - ORS

468A.035 468A.135

Other authority

ORS 477.013, 477.552,477.554, and 183.335(2)(b)(C)

Documents relied on for rulemaking

Document title	Document location
OAR 629-048-001through 629-048-0500	https://secure.sos.state.or.us/oard/view.action?ruleNumber=629-048-0001
Proposed Amended ODF Rules: OAR 629-048-0001, 629-048-0005, 629-048-0010, 629-048-0020, 629-048-0110, 629-048-0120, 629-048-0140, 629-048-0150, 629-048-0200, 629-048-0210, 629-048-0220, 629-048-0230, 629-048-0310, 629-048-0320, 629-048-0450 and 629-048-0500 Proposed New ODF Rules: OAR 629-048-0021, 629-048-0135, 629-048-0137, 629-048-0180	Provided on page 24 of this document
Operational Guidance for the Oregon Smoke Management Program – Directive 1-4-1-601	Provided on page 58 of this document.

Fee Analysis

DEQ's rulemaking does not involve fees. ODF's rulemaking makes a clarification to burn fees for different types of burn treatments. See ODF proposed rule amendments at the end of this document.

Statement of fiscal and economic impact

Fiscal and Economic Impact

This proposed DEQ rulemaking does not have a fiscal or economic impact on the public, units of local government, or state agencies. This proposal would adopt ODF amendments to the Oregon Smoke Management Plan into the Oregon Clean Air Act State Implementation Plan (SIP), as referenced in DEQ rules under OAR 340-200-0040. This document addresses the fiscal and economic impact of the EQC adopting into the SIP the plan amendments approved by ODF. ODF has prepared a similar document that addresses the fiscal and economic impact of the plan amendments they are proposing to adopt, as part of this joint rulemaking effort. The ODF fiscal impact statement is attached at the end of this document.

Statement of Cost of Compliance

This proposed rulemaking does not have any significant economic effect on businesses nor will small businesses incur any costs of compliance because it is an administrative action whereby the EQC would adopt ODF plan amendments into the SIP. For a description of the economic effects and costs of compliance of ODF's rulemaking, see the ODF fiscal impact statement attached.

Impact on other government entities other than DEQ

- a. Local governments: No significant impact
- b. State agencies: No significant impact

Public

There is no significant fiscal or economic impact on the general public.

Large businesses - businesses with more than 50 employees

This proposal would have no significant fiscal or economic impact on large businesses.

Small businesses – businesses with 50 or fewer employees

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

This proposal does not affect small businesses.

b. Projected reporting, recordkeeping and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

As this proposal does not affect small businesses, no additional activities apply to small businesses.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.

As this proposal does not affect small businesses, small businesses do not need additional resources to comply.

d. Describe how DEQ involved small businesses in developing this proposed rule.

As this proposal does not affect small businesses, small businesses were not involved in developing this proposal.

Documents relied on for fiscal and economic impact

DEQ did not rely on any documents to develop this Statement of fiscal and economic impact other than the fiscal impact developed by ODF for their proposed rules, ODF's proposed rules themselves, and implementing Directive. ODF's fiscal impact, proposed rules, and implementing Directive are included in the supporting materials section of this document starting on page 25.

Advisory committee

DEQ did not appoint an advisory committee, however, ODF did convene the Smoke Management Review Committee in the development of their changes to the Smoke Management Program rules. ODF relied on this committee for evaluating economic impacts of its separate rulemaking. The amendments being proposed to the plan are based on recommendations developed by this committee.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. DEQ determined the proposed rules would have no effect on the development costs because the proposed plan amendments and adoption into the SIP does affect housing or related costs.

Federal relationship

Relationship to federal requirements

ORS 183.332, 468A.327 and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

The proposed rules are not different from or in addition to federal requirements. By adopting ODF's plan amendments into the SIP, this rule proposal does not impose requirements different from or in addition to federal requirements. This action would ensure the Oregon Smoke Management Plan continues to comply with federal requirements in the Clean Air Act and is federally enforceable.

What alternatives did DEQ consider if any?

Since this action is necessary to comply with the requirements of the Clean Air Act, DEQ did not consider other options for this proposal.

Land Use

Land-use considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with state wide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and OAR 340 Division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
 - Resources, objectives or areas identified in the statewide planning goals, or
 - Present or future land uses identified in acknowledged comprehensive plans

To determine whether the proposed rules involve programs or actions that affect land use, DEQ reviewed its Statewide Agency Coordination plan, which describes the DEQ programs that have been determined to significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Open Spaces, Scenic and Historic Areas, and Natural Resources
6	Air, Water and Land Resources Quality
9	Ocean Resources
11	Public Facilities and Services
16	Estuarial Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that this rulemaking and the proposed revision to the SIP under OAR 340-200-0040 does not affect land use under OAR 340-018-0030 or DEQ's State Agency Coordination Program.

Stakeholder and public involvement

Advisory committee

DEQ did not convene an advisory committee. However, ODF convened the Smoke Management Review Committee. The committee met five times in 2017 and 2018. Both ODF and DEQ relied on this committee for evaluating the smoke management program. Committee recommendations are the basis for the proposed plan amendments. The Committee's primary focus was to review the smoke management policy and ensure program implementation is balanced in achieving the two program goals (ORS 477.552):

“To improve the management of prescribed burning as a forest management and protection practice; and

To minimize emissions from prescribed burning consistent with the air quality objectives of the federal Clean Air Act and the State of Oregon Clean Air Act Implementation Plan developed by the Department of Environmental Quality.”

The committee included representatives from Oregon local government, public health agencies and associations, Forestry and Forest Industry Associations, US EPA, USFS, BLM, Forest Collaboratives and Conservancy, Oregon Tribes, Lane Regional Air Pollution Authority, a Citizen at Large and the Sierra Club.

Environmental Quality Commission (EQC) prior involvement

DEQ shared information with the EQC about this rulemaking through an information item the at their September 13-14, 2017 meeting in Bend, and at their May 11, 2018 meeting in The Dalles.

Public notice and hearings

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearings on August 21st – August 29th, 2018 by:

- On July 18th, 2018 Filing notice with the Oregon Secretary of State for publication in the August 2018 Oregon Bulletin;
- Notifying the EPA by mail;
- Posting the Notice, Invitation to Comment and Draft Rules on the web page for this rulemaking, located at: [Smoke Management 2018](#);
- Emailing approximately 10,529 interested parties on the following DEQ lists through GovDelivery:
 - Rulemaking
 - [Smoke 2018](#)
 - Air Quality Maintenance Plans
 - DEQ Public Notices
- Emailing the following key legislators required under [ORS 183.335](#):
 - Senate President Peter Courtney
 - Speaker of the House Tina Kotek
 - Senator Michael Dembrow
 - Representative Ken Helm
 - Representative Brian Clem
- Postings on Twitter and Facebook
- Posting on the DEQ event calendar: [DEQ Calendar](#)

Public hearings

DEQ plans to hold five public hearings. The details are listed below. Anyone can attend a hearing in person or teleconference.

DEQ will consider all written comments received at the hearings listed below before completing the draft rules. DEQ will summarize all comments and respond to comments in the Environmental Quality Commission staff report.

Hearing 1	
Date	21 August 2018
Time	7-8:30 PM
Street Address	OSU Extension Service 10507 N. McAlister Rd

City	La Grande, 97850
Presiding Officer	Peter Brewer
Staff Presenter	Michael Orman
Call-in Phone Number	888-278-0296
Participant ID	8040259

Hearing 2	
Date	22 August 2018
Time	7-8:30 PM
Street Address	Deschutes Service Building 1300 NW Wall St Barnes and Sawyer Meeting Room
City	Bend, 97701
Presiding Officer	Peter Brewer
Staff Presenter	Michael Orman
Call-in Phone Number	888-278-0296
Participant ID	8040259

Hearing 3	
Date	23 August 2018
Time	7-8:30 PM
Street Address	Oregon Institute of Technology Campus, CU, Mt Thielsen Room, 3201 Campus Dr.
City	Klamath Falls, 97601
Presiding Officer	Michael Orman
Staff Presenter	Michael Orman
Call-in Phone Number	888-278-0296
Participant ID	8040259

Hearing 4	
Date	28 August 2018
Time	7-8:30 PM
Street Address	Lane Regional Air Protection Agency 165 East 7th Avenue, Suite 100
City	Eugene, 97401
Presiding Officer	Peter Brewer

Staff Presenter	Michael Orman
Call-in Phone Number	888-278-0296
Participant ID	8040259

Hearing 5	
Date	29 August 2018
Time	7-8:30 PM
Street Address	Smullin Health Education Center 2825 E Barnett Rd
City	Medford, 97504
Presiding Officer	Peter Brewer
Staff Presenter	Michael Orman
Call-in Phone Number	888-278-0296
Participant ID	8040259

How to comment on the proposed rules:

Submit comment online

[Smoke Management 2018 Comment Page](#)

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By mail

Oregon DEQ
 Attn: Rachel Sakata
 700 NE Multnomah St, Suite 600
 Portland, OR 97232

At the hearing

Close of public comment period

The comment period will close 4 p.m. on September 14th, 2018.

Accessibility Information

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Portland, OR, 97232

To schedule a review of all websites and documents referenced in this announcement, call Rachel Sakata, Portland, 503-229-5659. (800-452-4011, ext. 5622 toll-free in Oregon).

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Draft Rules - With Edits Highlighted

Key to Identifying Changed Text:

~~Deleted Text~~

New/inserted text

DEPARTMENT OF ENVIRONMENTAL QUALITY

Division 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

340-200-0040

State of Oregon Clean Air Act Implementation Plan

(1) This implementation plan, consisting of Volumes 2 and 3 of the State of Oregon Air Quality Control Program, contains control strategies, rules and standards prepared by DEQ and is adopted as the State Implementation Plan (SIP) of the State of Oregon under the FCAA, 42 U.S.C.A 7401 to 7671q.

(2) Except as provided in section (3), revisions to the SIP will be made under the EQC's rulemaking procedures in OAR 340 division 11 of this chapter and any other requirements contained in the SIP and will be submitted to the EPA for approval. The SIP was last modified by the EQC on ~~July 13~~ November 15-16, 2018.

(3) Notwithstanding any other requirement contained in the SIP, DEQ may:

(a) Submit to the EPA any permit condition implementing a rule that is part of the federally-approved SIP as a source-specific SIP revision after DEQ has complied with the public hearings provisions of 40 CFR 51.102; and

(b) Approve the standards submitted by LRAPA if LRAPA adopts verbatim, other than non-substantive differences, any standard that the EQC has adopted, and submit the standards to EPA for approval as a SIP revision.

(4) Revisions to the State of Oregon Clean Air Act Implementation Plan become federally enforceable upon approval by the EPA. If any provision of the federally approved State Implementation Plan conflicts with any provision adopted by the EQC, DEQ must enforce the more stringent provision.

Statutory/Other Authority: ORS 468.020 & 468A

Statutes/Other Implemented: ORS 468A.035 & 468A.135

Draft Rules – With Edits Incorporated

DEPARTMENT OF ENVIRONMENTAL QUALITY

Division 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

340-200-0040

State of Oregon Clean Air Act Implementation Plan

(1) This implementation plan, consisting of Volumes 2 and 3 of the State of Oregon Air Quality Control Program, contains control strategies, rules and standards prepared by DEQ and is adopted as the State Implementation Plan (SIP) of the State of Oregon under the FCAA, 42 U.S.C.A 7401 to 7671q.

(2) Except as provided in section (3), revisions to the SIP will be made under the EQC's rulemaking procedures in OAR 340 division 11 of this chapter and any other requirements contained in the SIP and will be submitted to the EPA for approval. The SIP was last modified by the EQC on November 15-16, 2018.

(3) Notwithstanding any other requirement contained in the SIP, DEQ may:

(a) Submit to the EPA any permit condition implementing a rule that is part of the federally-approved SIP as a source-specific SIP revision after DEQ has complied with the public hearings provisions of 40 CFR 51.102; and

(b) Approve the standards submitted by LRAPA if LRAPA adopts verbatim, other than non-substantive differences, any standard that the EQC has adopted, and submit the standards to EPA for approval as a SIP revision.

(4) Revisions to the State of Oregon Clean Air Act Implementation Plan become federally enforceable upon approval by the EPA. If any provision of the federally approved State Implementation Plan conflicts with any provision adopted by the EQC, DEQ must enforce the more stringent provision.

Statutory/Other Authority: ORS 468.020 & 468A

Statutes/Other Implemented: ORS 468A.035 & 468A.135

ODF Draft Rules - With Edits Highlighted

Key to Identifying Changed Text:

~~Deleted Text~~

New/inserted text

DIVISION 48 SMOKE MANAGEMENT

629-048-0001

Title, Scope and Effective Dates

(1) OAR 629-048-0001 through 629-048-0500 are known as the Smoke Management rules.

(2) The Smoke Management rules apply to prescribed burning of forest fuels for forest management purposes within any forest protection district in Oregon as described by OAR 629-041-0500 to 629-041-0575. ~~In addition, the rules apply to forestland outside any forest protection district in Oregon as described by ORS 527.620(7) at the discretion of the Oregon Department of Forestry and Department of Environmental Quality defined in a joint agreement.~~

(3) The Smoke Management rules are effective ~~July 11, 2014~~ **Oct 1, 2018**.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0005

Definitions

Unless otherwise defined below, terms used in this rule division shall have the meaning provided in ORS 477.001:

(1) “Alternatives to burning” means any forest management activity that reduces the volume of material, rather than actually being burned.

(2) “Board” means the State Board of Forestry.

(3) “Burn boss” means the person, authorized by the owner (may include the owner) or a federal land management agency to conduct and make decisions regarding the practices

involved in conducting a prescribed burning operation and who is responsible for compliance with all requirements under this rule division and related laws.

(4) “Burn registration” means the act or product of notifying the forester to the required level of detail, of intent to conduct a prescribed burning operation as required by OAR 629-048-0300.

(5) “Class I Area” means national parks and certain wilderness areas designated by Congress in 1977 as federal Class I Areas that are subject to visibility protection under the Environmental Protection Agency’s Regional Haze Rule and the federal Clean Air Act. Class I Areas in Oregon include: Crater Lake National Park, Diamond Peak Wilderness, Eagle Cap Wilderness, Gearhart Mountain Wilderness, Hells Canyon Wilderness, Kalmiopsis Wilderness, Mountain Lakes Wilderness, Mount Hood Wilderness, Mount Jefferson Wilderness, Mount Washington Wilderness, Strawberry Mountain Wilderness and Three Sisters Wilderness.

(6) “Class 1 forestland” has the same meaning as given in ORS 526.324 to “timber class” and includes all forestland primarily suitable for the production of timber.

(7) “Class 2 forestland” has the same meaning as given in ORS 526.324 to “timber and grazing class” and includes all forestland primarily suitable for joint use for timber production and the grazing of livestock, as a permanent or semi-permanent joint use, or as a temporary joint use during the interim between logging and reforestation.

(8) “Class 3 forestland” has the same meaning as given in ORS 526.324 to “agricultural class” and includes all forestland primarily suitable for grazing or other agricultural use.

(9) “Department” means the ~~State Forestry Department~~ **Oregon Department of Forestry (ODF)**.

(10) “Eastern Oregon” means the eighteen Oregon counties lying east of Multnomah, Clackamas, Marion, Linn, Lane, Douglas, and Jackson Counties.

(11) “Emission reduction technique” means any forest management activity that allows for a lower volume of particulate to be produced from a given volume of burning.

(12) “Emissions” means the gaseous and particulate combustion products in smoke resulting from burning forest fuels.

(13) “Federal land management agency” means the United States Department of Agriculture’s Forest Service; the United States Department of the Interior’s Bureau of Land Management, National Park Service, United States Fish and Wildlife Service, or Bureau of Indian Affairs; or any other federal agency that may conduct prescribed burning within a forest protection district.

- (14) “Field administrator” means an **ODF** employee ~~of the State Forestry Department~~, a forest protective association, or federal land management agency who has, among other responsibilities, an official role in determining whether a prescribed burn should proceed, continue or be suspended.
- (15) “Forester” means the State Forester or authorized representative including but not limited to fire wardens appointed under ORS 477.355.
- (16) “Forest fuels” means any flammable woody material, grass or other plant matter that may constitute a wildfire hazard or that is intended for disposal by prescribed burning, but does not include products that have had secondary processing such as boards, posts or paper.
- (17) “Forest protection district” means an area of forestland designated by the State Forester for protection from fire pursuant to ORS 477.225. Detailed descriptions of the forest protection districts may be found in OAR 629-041-0500 to 629-041-0575.
- (18) “Ground level” means at or close to the surface of the earth such that smoke at “ground level” could be inhaled by persons going about their normal business, in or out of doors. It does not include smoke that passes overhead when prescribed burning is conducted in accordance with the Smoke Management forecast and instructions.
- (19) “Level 1 regulation” means the program of requirements that apply to all forestland managed by a federal land management agency statewide, and all Class 1 forestland in western Oregon within a forest protection district (OAR 629-048-0100(2)). These requirements include burn registration at least seven days in advance (OAR 629-048-0300), fee administration (OAR 629-048-0310), compliance with Smoke Management forecast instructions (OAR 629-048-0230), and reporting of accomplishments (OAR 629-048-0320).
- (20) “Level 2 regulation” means the program of requirements that apply to all non-federal forestlands in eastern Oregon, and all Class 3 forestland in western Oregon within a forest protection district (OAR 629-048-0100(3)). These requirements include burn registration (OAR 629-048-0300) and reporting of accomplishments (OAR 629-048-0320).
- (21) “Mop-up” means action, usually involving the application of water or other means to eliminate heat, remove fuel or reduce the supply of oxygen, sufficient to make a fire safe or reduce residual smoke.
- (22) “Other areas sensitive to smoke” means specific recreation areas not listed as SSRAs in OAR 629-048-0140 but that are intended to receive consideration for focused forecasting attention for limited times during periods of heavy use by the public such as coastal beaches on holidays and other areas during special events.
- (23) “Prescribed burning” means the use of fire ignited as a planned management activity on forestland to meet specific objectives involving the reduction or removal of forest fuels. Prescribed burning does not include impromptu fires ignited for purposes such as warming

fires, burn-out or backfire operations used in wildfire suppression, or lightning ignited “wildland fire use” as practiced by federal land management agencies.

(24) “Regional haze” means air pollution transported over long distances into Class I Areas that reduces visibility in those areas.

(25) “Residual smoke” means smoke produced after the initial fire has passed through the fuel.

~~(2826)~~ “Smoke Sensitive Receptor Area or SSRA” means an area designated for the highest level of protection under the Smoke Management Plan, as described and listed in OAR 629-048-0140.

~~(2627)~~ “Smoke intrusion” means the verified entrance of smoke from prescribed burning into an ~~Smoke Sensitive Receptor Area~~ SSRA at ground level **that meets or exceeds 70 micrograms per cubic meter for any one-hour period and/or averages at or above 26 micrograms per cubic meter for a 24-hour period, measured from midnight to midnight beginning on the first day of smoke entrance.**

(28) “Smoke incident” means the verified entrance of smoke from prescribed burning into an SSRA at levels below a smoke intrusion (see “Smoke intrusion” definition), other areas sensitive to smoke, or a community other than an SSRA.

~~(2729)~~ “Smoke Management forecast unit” means any or all of the persons appointed or assigned by the State Forester to develop and interpret weather forecasts and produce Smoke Management instructions, usually operating from the department headquarters in Salem.

~~(2930)~~ “Underburning” means low-intensity prescribed burning to maintain forest health through reduction of fuels in the understory of a forest stand while maintaining the overstory stand characteristics.

~~(30) “Verified smoke incident” means an entrance of prescribed burning smoke into a community, other than an SSRA, investigated by the forester to:~~

~~(a) Validate claims that smoke did, in fact, enter the area described, at ground level;~~

~~(b) Determine if the smoke or a portion of it, in fact, derived from forest management prescribed burning from a legally conducted operation; and~~

~~(c) If (a) and (b) of this section were affirmed, determine the intensity and approximate duration of the smoke incident as described in OAR 629-048-0110.~~

(31) “Western Oregon” means the eighteen Oregon counties lying west of Hood River, Wasco, Jefferson, Deschutes and Klamath Counties.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0010

Purpose

- (1) ORS 477.013 requires the State Forester and the Department of Environmental Quality (**DEQ**) to approve a plan for managing smoke in areas that they are to designate, for the purpose of maintaining air quality. The plan must designate areas within which all burning must comply with the plan.
- (2) The Smoke Management rules are intended to establish the areas required by ORS 477.013; describe the objectives of the Smoke Management Plan; establish procedures to be followed in administering prescribed burning; educate the public as to the necessity of prescribed burning and the measures being taken to protect air quality, public health and visibility; and to provide enforceable mechanisms to ensure the requirements of the Smoke Management Plan are met.
- (3) The Smoke Management rules, promulgated by the State Forester, together with Department Directive 1-4-1-601, "Operational Guidance for the Oregon Smoke Management Program," shall comprise the Smoke Management Plan upon approval by DEQ and filing with the Secretary of State.
- (4) The objectives of the Smoke Management Plan are to:
 - (a) ~~Prevent~~ **Minimize** smoke **emissions** resulting from prescribed burning **as described by ORS 477.552**; ~~on forestlands from being carried to or accumulating in SSRAs or other areas sensitive to smoke, and to provide maximum opportunity for essential forestland burning while minimizing emissions;~~
 - (b) Provide maximum opportunity for essential forestland burning;**
 - (c) Protect public health by avoiding intrusions;**
 - ~~(bd)~~ Coordinate with other state smoke management programs;
 - ~~(ee)~~ Comply with state and federal air quality and visibility requirements; and
 - ~~(d) Protect public health; and~~
 - ~~(ef)~~ Promote the ~~reduction of~~ **further development of techniques to minimize** emissions by encouraging cost-effective utilization of forestland biomass, alternatives to burning and ~~alternative burning practices~~ **emission reduction techniques.**

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0020

Necessity of Prescribed Burning

- (1) All of Oregon's forestlands ~~are flammable~~ **can burn** under the right conditions of fuel dryness, heat and wind.
- (2) As a part of the natural ecology of forestlands, wildfire is neither necessarily good nor bad. However, there are a number of **undesirable** characteristics of unplanned, uncontrolled fires ~~that are usually regarded by humans as undesirable~~. Among these are threats to public safety, destruction of **natural resources and** property, and the adverse health effects that can occur from breathing a significant amount of fine particulate matter associated with wildfire smoke.
- (3) When areas do not experience fire or other means of reducing forest fuels for extended periods, ~~there is a greater~~ wildfire hazard ~~and~~ **increases**. ~~The~~ ~~the~~ likelihood increases ~~that~~ if unplanned ignitions occur, through whatever means, ~~that~~ the resulting wildfire will burn at greater intensity and be more difficult to suppress.
- (4) Because wildfires typically burn during hotter, drier conditions than those usually planned for prescribed fires, forest fuels are more completely consumed, producing more emissions. Also, wildfires often occur during periods of atmospheric stability, ~~and thus air stagnation~~ trapping smoke close to the ground where it's more likely to impact humans. ~~and less likely to be quickly carried away by higher altitude transport winds.~~
- (5) Prescribed burning is used as a management ~~tool technique~~ to reduce forest fuels either as the primary mechanism such as in grass and brush areas for maintenance of grazing, and underburning of open forest stands for forest health purposes; or as a secondary fuel reduction method following thinning or final harvesting. ~~It~~ **Prescribed burning** is typically conducted ~~at a time and under fuel and~~ **when** weather conditions ~~whereby the~~ **allow** fine fuels ~~that more to~~ readily ignite ~~and carry fire across the landscape are consumed but the~~ **while** larger fuels are consumed to a lesser degree than in a wildfire. Resulting emissions are ~~both reduced overall, and more likely carried into higher altitudes and dissipated by high level winds, away from concentrations of people.~~ quickly, before affecting populated areas.
- (6) When ~~adequate~~ forest fuel reduction can be achieved economically without ~~the use of~~ using prescribed burning, ~~because of other fire associated risks,~~ that choice is usually favored. Even so, there are often silvicultural or agricultural advantages to prescribed burning such as site preparation, nutrient cycling and reduction of pests and disease that may not be achieved by simply removing the forest fuels. For all these reasons described above, the Legislative Assembly (ORS 477.552) and Board of Forestry have found it necessary to maintain ~~the viability of~~ prescribed burning as a forest management practice.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0021

Necessity of Safeguarding Public Health

- (1) Excessive smoke, no matter its source, can pose a serious health risk to the public, especially vulnerable populations.**
- (2) To help minimize the health risks to the public from prescribed burning, the program encourages prescribed burning emissions be minimized and smoke intrusions be avoided.**

629-048-0100

Regulated Areas

- (1) All lands classified as "forestland" under ORS 526.305 to 526.370 and all forestland managed by a federal agency regardless of whether or not classified, within a forest protection district, are subject to regulation of prescribed burning pursuant to ORS 477.013. The level of regulation may vary according to specific classification; e.g., Class 1, 2 or 3 forestland as described in ORS 526.305 to 526.370.
- (2) Class 1 forestland in western Oregon, and all forestland managed by a federal land management agency statewide, within a forest protection district, is subject to burn registration at least seven days in advance (OAR 629-048-0300), fee administration (OAR 629-048-0310), compliance with Smoke Management forecast instructions (OAR 629-048-0230), and reporting of accomplishments (OAR 629-048-0320). The forestlands and applicable regulations listed in this section may be referred to as "Level 1 regulation."
- (3) All other non-federal forestland within a forest protection district, including, but not limited to, private forestlands in eastern Oregon and Class 3 private forestland in western Oregon is subject to burn registration (OAR 629-048-0300) and reporting of accomplishments (OAR 629-048-0320) but is not subject to fee administration or compliance with smoke management forecast instructions. The forestlands and applicable regulations listed in this section may be referred to as "Level 2 regulation."
- (4) All prescribed burning on forestland within a forest protection district is subject to suspension of burning by the forester under ORS 477.520 due to conditions such as air stagnation or fire danger.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0110

~~Characterization of Smoke Incidents or Intrusions~~ **Characterization and Response to Smoke Incidents, Intrusions, and National Ambient Air Quality Standards (NAAQS) Exceedances**

(1)(a) When investigating or collecting information on smoke incidents or intrusions, the department will attempt to characterize the ~~incident or intrusion in terms of its intensity (light, moderate or heavy) and duration in hours or minutes.~~ **event as either a smoke intrusion or a smoke incident as defined in OAR 629-048-0005.** ~~To the extent it can reasonably do so, the department may also attempt to determine the amount of populated area affected (in square miles or acres) and an estimate of the number of people present during the incident or intrusion.~~

(b) As used in the Smoke Management rules, "smoke intrusion" refers only to ground level prescribed burning smoke that enters an SSRA at ~~ground level.~~ **particulate matter values defined in OAR 629-048-0005(27).** ~~Nonetheless, the methods and descriptions described in this rule may be applied to the measurement of any smoke incident relevant to the Smoke Management Plan.~~

(2) When measurements or observations are available, **smoke incidents or smoke intrusions** are characterized ~~in the following manner based on nephelometer~~ **particulate matter** values (averaged over a one-hour period, **or a 24-hour period**) ~~above the clean air background:~~ **from midnight to midnight beginning on the first day of smoke entrance.**

(a) ~~A light intensity incident or intrusion is characterized by light scattering measurement of less than 1.8×10^{-4} B-scat (Beta scatter);~~

(b) ~~A moderate intensity incident or intrusion is characterized by a light scattering measurement of greater than or equal to 1.8×10^{-4} B-scat but less than or equal to 4.9×10^{-4} B-scat; and~~

(c) ~~A heavy intensity incident or intrusion is characterized by a light scattering measurement of greater than 4.9×10^{-4} B-scat.~~

(3) ~~The clean air background is the average nephelometer reading for the three hours prior to the incident or intrusion.~~

(4) ~~When no nephelometer data are available, incident or intrusion intensity is characterized based on reduction in visibility (also averaged over a one hour period) using standard National Weather Service visibility observation criteria and a table of reductions keyed to various background visibility levels as displayed in department Directive 1-4-1-601, "Operational Guidance for the Oregon Smoke Management Program." As an example, on a day when background visibility has been greater than 50 miles, a light intensity incident or intrusion has reduced visibility to greater than or equal to 11.4 miles; a moderate intensity incident or intrusion has reduced visibility to less than 11.4 miles, but greater than or equal~~

to 4.6 miles; and a heavy intensity incident or intrusion has reduced visibility to less than 4.6 miles.

(3) When no particulate matter data is available, smoke incidents or smoke intrusions are determined based on reduction in visibility averaged over a one-hour period using standard National Weather Service visibility observation criteria and a table of reductions keyed to various background visibility levels as displayed in Department Directive 1-4-1-601, “Operational Guidance for the Oregon Smoke Management Program.”

(4) Smoke incidents and intrusions will be documented and used to assess annual program performance. Department Directive 1-4-1-601 “Operational Guidance for the Oregon Smoke Management Program” will describe applicable reporting requirements and actions to be taken.

(5) Smoke intrusions that meet or exceed the 24-hour average PM2.5 value of 35 microgram per cubic meter (NAAQS exceedance) will be reported to DEQ as soon as possible. Department Directive 1-4-1-601 “Operational Guidance for the Oregon Smoke Management Program” will describe applicable reporting requirements and adaptive management actions to be taken if this event occurs.

**[ED. NOTE: Department Directive 1-4-1-601 “Operational Guidance for the Oregon Smoke Management Program.” is available online at:
<http://www.oregon.gov/ODF/Documents/Fire/smd.pdf>]**

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0120

Air Quality Maintenance Objectives

(1) When prescribed burning is conducted near ~~in proximity to~~, but outside communities or areas designated as SSRAs, the objective of the Smoke Management Plan is ~~to~~ to minimize emissions and avoid smoke intrusions into the SSRA.

(2) When prescribed burning is conducted inside an SSRA, the Smoke Management Plan objective is to use best burn practices and prompt mop-up, as appropriate, along with tight parameters for burn-site conditions that are intended to vent the main smoke plume up and out of the SSRA and minimize residual smoke.

(3) In all other instances of prescribed burning it is the intent under the Smoke Management Plan to minimize the amount and duration of smoke that comes in contact with humans at ~~their places of residence or other places where they normally live, work, play, exercise or gather in numbers such as to work, conduct commerce or participate in public events.~~ live, work, play, exercise or gather in numbers such as to work, conduct commerce or participate in public events.

(4) The first element in minimizing smoke contact is encouraging forestland owners to burn only those units which cannot otherwise meet forest management objectives in cost-effective alternative ways such as wood or biomass utilization.

(5) When prescribed burning is used, owners are further encouraged to employ the emission reduction techniques described in OAR 629-048-0210 to ensure the least emissions practicable.

(6) In addition to compliance with Smoke Management instructions issued in the daily forecast and compliance with all conditions of the burn permit required under ORS 477.515, burn bosses and field administrators are encouraged to closely observe local conditions at the burn site ~~and to light, manage,~~. **They should** suspend lighting if necessary, and mop-up burns, when appropriate, in a manner that takes into consideration the possible smoke effects from the main smoke plume or significant residual smoke on residences or businesses that may be ~~near in close proximity to~~ the burn site.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0130

Visibility Objectives

(1) It is the intent under the Smoke Management Plan to comply with the Oregon Visibility Protection Plan (OAR 340-200-0040, Section 5.2).

(2) It is the intent under the Smoke Management Plan to operate in a manner consistent with the Oregon Regional Haze Plan, including the Enhanced Smoke Management Program (ESMP) criteria contained in the plan, for the purpose of protecting Class I Area visibility. These ESMP criteria include:

- (a) Actions to minimize emissions;
- (b) Evaluation of smoke dispersion;
- (c) Alternatives to fire;
- (d) Public notification;
- (e) Air quality monitoring;
- (f) Surveillance and enforcement;
- (g) Program evaluation;

(h) Burn authorization; and

(i) Regional coordination.

(3) When prescribed burning is conducted outside any Class I Area, an objective of the Smoke Management Plan is to minimize any smoke that impairs visibility inside the Class I Area. In addition to compliance with Smoke Management instructions issued in the daily forecast and compliance with all conditions of the burn permit required under ORS 477.515, burn bosses and field administrators are encouraged to closely observe local conditions at the burn site to avoid the main smoke plume entering a Class I Area at ground level.

(4) When prescribed burning is conducted inside a Class I Area, the Smoke Management Plan objective is to use best practices along with tight parameters for burn-site conditions that will vent the main smoke plume up and out of the Class I Area and minimize residual smoke.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0135

Special Protection Zone Requirements

Special Protection Zones (SPZ) have been established around certain communities (see maps located within Department Directive 1-4-1-601, “Operational Guidance for the Oregon Smoke Management Program, Appendix 5) requiring additional protection from particulates. Any burning in an SPZ, during its protection period, must have the approval of the meteorologist. These SPZ provisions apply from November 15 through February 15 to the following communities which are particulate matter (PM) nonattainment and maintenance areas: Klamath Falls, Medford, Oakridge, and Lakeview.

(1) From November 15 through February 15, prescribed burning in the SPZ is allowed on “Green” and “Yellow” woodstove days (see OAR 340-262-0800 and local ordinances for communities listed above) if:

(a) The ODF Smoke Management meteorologist believes there will be minimal measurable smoke impacts.

(b) Landowners are responsible for intermittent monitoring for at least three days following ignition to ensure the smoke is not causing an impact. ODF can waive this provision if it believes monitoring is unnecessary on a specific burn unit.

(c) Landowners provide a level of mop-up, as directed by ODF, to minimize

smoke impacts. Mop-up shall be included as an element of the burn plan.

(d) ODF believes that piles will not produce significant smoke after the third day.

(2) From December 1 through February 15, no prescribed burning is allowed on “Red” woodstove days in the SPZ. Prescribed burning on “Red” days from November 15 through 30 is allowed and subject to the same conditions for “Green” and “Yellow” days as described in section 1(a-d) of this rule.

(3) Burning should be prioritized so units that are smaller and/or further from the SPZ boundary have higher priority to burn than units larger and/or closer to the SPZ boundary.

(4) Districts and Forests having jurisdiction in any SPZ will be responsible for monitoring restrictions in the nonattainment or maintenance area as described in section 1 and 2 of this rule.

(5) SPZ provisions shall apply as long as the area is in PM nonattainment or is in maintenance of the PM standard. An SPZ shall be developed by DEQ or Lane Regional Air Protection Agency (LRAPA) for any newly declared PM nonattainment area, in consultation with ODF. For areas declared nonattainment from January 1 through May 31, the new SPZ requirements shall become effective on November 15 in the year the area is declared nonattainment. If the area is declared nonattainment from June 1 through December 31, the new SPZ shall be effective on November 15 of the following year.

629-048-0137

SPZ Contingency Plan Requirements

In the event communities listed in OAR 629-048-0135; as well as Eugene/Springfield, Grants Pass, and La Grande maintenance areas; ~~violate the PM standard~~ exceed the 24-hour average PM_{2.5} National Ambient Air Quality Standard value of 35 micrograms per cubic meter and prescribed burning is determined to be a significant contributor, the following contingency plan requirements shall be implemented:

(1) The SPZ boundary will be expanded to include the area from which prescribed burning could impact the PM nonattainment or maintenance area. Any boundary change will be jointly agreed to by ODF and DEQ.

(2) SPZ restrictions will apply from November 1 through March 1, except for Klamath Falls where they will apply from November 1 through April 1.

(3) The SPZ for Klamath Falls and Lakeview, as well as all future PM nonattainment or maintenance areas in areas of level 2 regulation under the Oregon Smoke Management program, shall be subject to burning reporting requirements of Level 1 regulation during the time when the SPZ is in effect.

(4) ODF and DEQ will take adaptive management steps described in OAR 629-048-0110(5).

[ED. NOTE: Language in OAR 629-048-0135 and 0137 was previously in the Department Directive 1-4-1-601 “Operational Guidance for the Oregon Smoke Management Program.”]

629-048-0140

Smoke Sensitive Receptor Areas

An SSRA is an area designated by the board, in consultation with DEQ, which is provided the highest level of protection under the Smoke Management Plan ~~because of~~. **This is due to** its past history of smoke incidents, density of population or other special legal status related to visibility such as the Columbia River Gorge Scenic Area. The following are SSRAs:

(1) The area within the State of Oregon commonly understood to be the Willamette Valley that:

(a) Lies east of the forest protection district boundaries of the Northwest Oregon, West Oregon and Western Lane Forest Protection Districts, west of the forest protection district boundaries of the North Cascade and South Cascade Forest Protection Districts and north of where the Western Lane and South Cascade Forest Protection Districts come together in southern Lane County (for detailed district boundary descriptions, see OAR 629-041-0500 to 629-041-0575);

(b) Notwithstanding the actual location of the forest protection district boundaries, includes the area within the city limits of the following cities that straddle, or are within but immediately adjoin, the forest protection district boundary:

(A) Carlton;

(B) Corvallis;

(C) Cottage Grove;

(D) Dallas

(E) Eugene;

(F) McMinnville;

(G) Portland;

(H) Sheridan;

- (I) Silverton;
- (J) Springfield;
- (K) St. Helens;
- (L) Stayton;
- (M) Sublimity;
- (N) Veneta;
- (O) Willamina; and
- (P) Yamhill;

(2) Within the acknowledged urban growth boundaries of the following cities:

- (a) Astoria;
- (b) Baker City;
- (c) Bend;
- (d) Burns;
- (e) Coos Bay;
- (f) Enterprise;
- (g) Grants Pass;
- (h) John Day;
- (i) Klamath Falls;
- (j) La Grande;
- (k) Lakeview;
- (l) Lincoln City;
- (m) Newport;
- (n) North Bend;

- (o) Oakridge;
- (p) Pendleton;
- (q) Redmond;
- (r) Roseburg;
- (s) The Dalles; and
- (t) Tillamook;

(3) The area within the Bear Creek and Rogue River Valleys described in OAR 629-048-0160, including the cities of Ashland, Central Point, Eagle Point, Jacksonville, Medford, Phoenix and Talent; and

(4) The area within the Columbia River Gorge Scenic Area, as described in 16 U.S.C. Section 544b, (2003).

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
 Stats. Implemented: ORS 477.013, 477.515, 477.562
 Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0150

Criteria for Future Listing of Smoke Sensitive Receptor Areas

To ensure continued accomplishment of the Smoke Management Plan objectives, additional SSRAs may be listed according to the following procedures:

- (1) Not more than once per calendar year, the board must consider additional SSRA listings if:
 - (a) ~~ODF The department~~ recommends consideration of a community for SSRA listing based on observations of repeated ~~verified~~ smoke incidents as described in section (5) of this rule;
 - (b) ~~DEQ The Department of Environmental Quality~~ recommends consideration of a community for SSRA listing based on evidence of airborne particulate concentrations in the community at levels that make periodic ~~exceedance of ambient air quality standards~~ **NAAQS exceedances** a significant possibility; or
 - (c) The governing body of a city, or county for an unincorporated area, requests by official action consideration of a community for SSRA listing, and cites the reasons for its request upon:
 - (A) The occurrence of a ~~verified~~ smoke incident lasting more than four hours;

- (B) More than one ~~verified~~ smoke incident in the same calendar year; or
 - (C) Repeated ~~verified~~ smoke incidents as described in section (5) of this rule that have occurred within the five years immediately preceding the request.
- (2) When considering whether to list a community as an SSRA, the board shall evaluate the evidence presented to it, including any information received at one or more public meetings.
- (a) Specifically, the board shall consider information regarding:
 - (A) The frequency, duration and ~~intensity~~ **magnitude** of ~~verified~~ smoke incidents;
 - (B) Population of the community;
 - (C) The results, if any, of mechanical or systematic monitoring of airborne particulate concentrations, or other verifiable information regarding existing air quality problems in the community under consideration;
 - (D) The nature and performance of any local programs addressing airborne particulate concentrations;
 - (E) Recent trends in, and future plans for, prescribed burning activity on surrounding forestlands;
 - (F) Any local topographic or meteorological effects that may influence the frequency, duration or ~~intensity~~ **magnitude** of smoke incidents;
 - (G) Evaluation of the local and regional effect that listing the community as an SSRA will have on the Smoke Management Plan's objectives of maintaining air quality and accomplishing necessary prescribed burning;
 - (H) The reasons cited in a request received under subsection (1)(c) of this rule;
 - (I) The joint recommendations of the department and DEQ regarding whether the community should be listed and why; and
 - (J) Any other information that is relevant to accomplishing the objectives of the Smoke Management Plan.
 - (b) If joint recommendations are not achieved under paragraph (2)(a)(I) above, the department shall prepare a report for the board detailing any differences in recommendations and its explanations for the differences.
- (3) After considering the evidence presented to it, except as provided in section (4) of this rule, the board may take any one of the following actions:

- (a) Reject the recommendation or request;
 - (b) Acknowledge that smoke incidents have occurred, but direct the department to pursue an alternate course of further information gathering, monitoring, operational modifications or other efforts aimed at reducing the likelihood of continuing smoke incidents; or
 - (c) Accept the recommendation or request by defining the applicable boundaries of the community to be listed, directing the department to begin treating the community as an SSRA and following a timely process to amend OAR 629-048-0140 accordingly.
- (4)(a) The board's choice of actions shall be limited to those described in either subsections (b) or (c) of this section, if it finds that all of the following circumstances exist:
- (A) The community proposed for listing has incurred repeated ~~verified~~ smoke incidents-as described in section (5) of this rule, that have occurred within the five years immediately preceding the request or recommendation in section (1) above;
 - (B) The community is a city with a population in excess of 10,000 within the incorporated city limits, according to the most recently published population estimate of the Population Research Center, Portland State University; and
 - (C) There is a likelihood of continuing frequent use of prescribed burning as a forest management activity on forestland within 30 miles of the city limits.
- (b) For communities with no air quality monitoring data, the board may delay a final action determining whether to list the community as an SSRA if monitoring equipment is installed in the community to gather information leading to a final determination; or
 - (c) The board may define the applicable boundaries of the community to be listed, direct the department to begin treating the community as an SSRA and follow a timely process to amend OAR 629-048-0140 accordingly.
- (5) "Repeated ~~verified~~ smoke incidents" as used in this rule refers to ~~any of the following combinations of verified smoke incidents resulting from lawfully conducted prescribed burning on forestland in any continuous period of three years or less:~~ **two or more smoke incidents in one calendar year.**
- ~~(a) One heavy intensity smoke incident and one moderate or light intensity smoke incident, the latter lasting at least one hour;~~
 - ~~(b) Two moderate intensity smoke incidents, both lasting at least one hour; or~~
 - ~~(c) Three or more smoke incidents of any combination of intensity for a combined duration of at least three hours (using the intensity parameters described in OAR 629-048-0110 for all of the above).~~

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0160

Bear Creek/Rogue River Valley SSRA

The Bear Creek and Rogue River Valley smoke sensitive receptor area listed in OAR 629-048-0140 (3) is defined as beginning at a point approximately one mile NE of the town of Eagle Point, Jackson County, Oregon, at the NE corner of Section 36, T35S, R1W; thence south along the Willamette Meridian to the SE corner of Section 25, T37S, R1W; thence SE to the SE corner of Section 9, 39S, R2E; thence SSE to the SE corner of Section 22, T39S, R2E; thence south to the SE corner of Section 27, T39S, R2E; thence SW to the SE corner of Section 33, T39S, R2E; thence west to the SW corner of Section 31, T39S, R2E; thence NW to the NW corner of Section 36, T39S, R1E; thence west to the SW corner of Section 26, T39S, R1E; thence NW to the SE corner of Section 7, T39S, R1E; thence west to the SW corner of Section 12, T39S, R1W; thence NW to the SW corner of Section 20, T38S, R1W; thence west to the SW corner of Section 24, T38S, R2W; thence NW to the SW corner of Section 4, T38S, R2W; thence west to the SW corner of Section 5, T38S, R2W; thence NW to the SW corner of Section 31, T37S, R2W; thence north to the Rogue River, thence north and east along the Rogue River to the north boundary of Section 32, T35S, R1W; thence east to the point of beginning.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0180

Community Response Plan and Exemption Request

(1) ODF Salem headquarters office shall develop and distribute a best-practices communication framework for dissemination through local ODF and federal district offices to their respective county health department(s). The communications framework shall include general information regarding: (1) the purpose and importance of prescribed burning, (2) the health risks of wildfire and prescribed fire smoke, (3) how local officials and the public can find out about daily burn plans and emission reduction actions in their area, and (4) notification of smoke anticipated entering into specific SSRAs.

(2) ODF and DEQ recommend that communities that are SSRAs which have experienced repeated smoke incidents and/or intrusions in the past develop a community response plan. This plan shall be in coordination with local ODF or federal district offices with jurisdictional responsibilities for prescribed burns, to determine

how an SSRA will respond when notified of a potential smoke incident or intrusion into their area.

(a) The community response plan should be coordinated through the county health department but developed collaboratively with input from community officials, agencies, businesses, and other interested parties.

(b) The plan shall include education about prescribed burning for local residents so they understand potential health impacts from smoke and what steps they can take to reduce their risk of exposure. The plan shall also outline how the community will be alerted whenever smoke from prescribed burning appears likely to impact it, and what local agencies can do to protect community residents, especially vulnerable populations.

(c) Communities that develop and implement such a plan to proactively alert the public of likely prescribed fire smoke impacts and provide actions (as described above) to mitigate exposure to vulnerable populations and support citizens who may not have the means to take mitigation efforts may request an exemption from the one-hour smoke intrusion threshold in order to provide maximum opportunity for essential forestland burning in the Wildland Urban Interface where wildfire risk to forest, communities, and firefighters is greatest. The request for exemption must be approved by the community's local governing body in coordination with the County Board of Commissioners. The request for exemption will be considered for approval by ODF and DEQ under the advisement of Oregon Health Authority.

629-048-0200

Alternatives to Burning

(1) When planning forest management prescriptions and particularly final harvests (prior to reforestation), owners are encouraged to use practices that will eliminate or significantly reduce the volume of prescribed burning necessary to meet their management objectives. Some practices to consider include, but are not limited to:

(a) Maximizing the cost-effective use of woody material for manufacture of products;

(b) Where cost-effective, using wood or other biomass for energy production or mulch;

(c) Lopping and scattering limbs and other woody material, or operating heavy machinery over the wood to maximize contact with the soil in order to speed its breakdown; or

(d) Re-arranging woody materials, as necessary to accomplish reforestation through the slash (from a fire prevention standpoint, this may not be desirable in areas of heavy fuel concentrations or where soil moistures are not conducive to breakdown of fuels).

(e) Removing or minimizing large fuel concentrations and heavy fuel loading to minimize smoldering.

(2) When prescribed burning is determined to be necessary to achieve forest management objectives, owners are encouraged to use emission reduction techniques as described in OAR 629-048-0210.

(3) Prior to registration, forestland managers are strongly encouraged to consult the following:

(a) "Non-burning Alternatives to Prescribed Fire on Wildlands in the Western United States" at <http://www.wrapair.org/forums/fej/tasks/FEJFtask3.html> (Western Regional Air Partnership, February, 2004);

(b) The Oregon Forest Industry Directory website provides information on potential markets for woody material at www.orforestdirectory.com/; and

(c) ~~“Oregon Forest Biomass Estimate Forest Biomass Analysis for Western States by County”~~ by Phillip S. Cook and Jay O’Laughlin (Western Governors’ Association, January 24, 2011), ~~on the Woody Biomass Utilization Database at Oregon Department of Energy’s website at:~~

https://www.researchgate.net/profile/Jay_Laughlin/publication/266451188_Forest_Biomass_Supply_Analysis_for_Western_States_by_County_Final_Report_to_the_Western_Governors%27_Association/links/55b0ead208ae9289a0849d62/Forest-Biomass-Supply-Analysis-for-Western-States-by-County-Final-Report-to-the-Western-Governors-Association.pdf

~~www.oregon.gov/energy/RENEW/Biomass/Pages/Bioenergy_maps.aspx~~

(4) As described in 629-048-0450(2)(c), the department shall complete an annual report summarizing the use of alternatives to burning.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0210

Best Burn Practices; Emission Reduction Techniques

(1) "Best burn practices" as used in this rule refers to those practices designed to minimize emissions from prescribed burning or accomplish burning at times and under such conditions as to minimize the likelihood that emissions will have adverse effects to the air quality maintenance or visibility objectives (OAR 629-048-0120 and 629-048-0130). Additional practices not described in this rule may be necessary to ensure against the escape of fire or protection of forest resources.

(2) In general, best burn practices involve methods that ensure the most rapid and complete combustion of forest fuels while nearby, "non-target" fuels are prevented from burning, such as:

(a) Physical separation of "target" and "non-target" fuels;

(b) Burn prescriptions, particularly for broadcast burns, that recognize and utilize the natural differences in fuel moistures of larger and smaller pieces of woody material; or

(c) Covering of piles sufficient to facilitate ignition and complete combustion, and then burning them at times of the year when all other fuels are damp, when it is raining or there is snow on the ground.

(3) Rapid combustion is well served by rapid ignition which may involve the use of petroleum accelerants (with appropriate safety precautions) and by maintaining an adequate air supply to the forest fuels being burned. Piles and windrows should be mostly free of soil, rocks and other non-combustible materials and should be loosely stacked to promote aeration. Where practicable, re-stacking or "feeding" the burn pile is encouraged to complete combustion and avoid smoldering.

(4) When piles are covered as a best burn practice and the covers are to be removed before burning, any effective materials may be used, as long as they are removed for re-use or properly disposed of. When covers will not be removed and thus will be burned along with the piled forest fuels, the covers must not consist of materials prohibited under OAR 340-264-0060(3), except that polyethylene sheeting that complies with the following may be used:

(a) Only polyethylene may be used. All other plastics are prohibited;

(b) The size of each polyethylene cover ~~must not exceed 100 square feet. For small piles, covering only an area may vary as~~ necessary to achieve rapid ignition and combustion. ~~instead of the entire pile, is encouraged;~~

(c) ~~The thickness of the polyethylene cover must not exceed 4 mil; and~~

(d) ~~Layering or multiple covers (exceeding 100 square feet combined) within a pile is prohibited, unless authorized in writing by the forester to meet ignition and combustion needs.~~

(5) The use of petroleum accelerants and polyethylene covers as "best burn practices" described in this rule is expressly intended as an exception to OAR 340-264-0060(3) as allowed by 340-264-0060.

(6) In general, rapid mop-up of prescribed burning is not needed to meet the objectives of the prescribed burn and protect air quality. However, in instances of prescribed burning within an SSRA or when conditions change significantly from those forecasted or present at

the time of ignition, rapid mop-up may become necessary to prevent ~~excessive residual a~~ smoke or entry of smoke into an SSRA or other area sensitive to smoke. ~~intrusion~~. Burn plans required under OAR 629-043-0026(4), prescribed fire plans required by federal land management agency policy, or burn permits required under ORS 477.515, when appropriate, should address conditions that may require mop-up of the prescribed burn and to what extent.

(7) When local conditions for smoke dispersal appear to be better than forecasted, burn bosses and field administrators are encouraged to communicate such information to the Smoke Management forecast unit, to further the objective of accomplishing burning during the most favorable conditions.

(8) As described in 629-048-0450(2)(c), the department shall complete an annual report summarizing the use of emission reduction techniques.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0220

Forecast Procedures

(1) There are several concepts and procedural steps involved in accomplishing the Smoke Management Plan objectives, designed to maximize opportunities for accomplishing burning while minimizing the likelihood of public health effects or visibility impairment in Class I Areas. The following sections of this rule attempt to explain some of these concepts.

(2) The basic underlying mechanism in smoke management is the use of an understanding of atmospheric dynamics and combustion processes, in concert with current weather forecasts, to ensure that the bulk of emissions from prescribed burning are transported to areas of low or no adverse effect by:

(a) In the case of broadcast or large pile burning, generating heat rapidly so that the fuel is quickly consumed and emissions rise sufficiently above ground level to either:

(A) Become diluted and dispersed in the atmosphere via transport winds to areas of minimal impact; or

(B) Mix with the moisture in clouds and fall back to earth as precipitation; or

(b) In the case of low-intensity underburning or small piles under the forest canopy, managing the volume of material burned per unit of time and paying careful attention to surface winds to keep total emissions low and disperse the smoke to relatively unpopulated areas.

(3) For each day that prescribed burning is planned on forestland with Level 1 regulation, a weather forecast is prepared by meteorologists specializing in smoke management. By examining the atmospheric conditions predicted for the burn day, such as vent heights, mixing layers, wind speed and direction, as well as information about what level of pollutants may already be present in a given area, the meteorologists determine if and where conditions will be favorable to accomplish burning.

(4) In addition to the weather forecast, specific information is required on the location of planned burns, and the tonnage of fuel that is expected to be consumed in a burn. This information is provided on a per unit basis at the time that burns are registered and planned with the forester (see OAR 629-048-0300).

(5) With knowledge of the information described above, and based on dispersion models that have been developed through time and experience, forecasters are able to reasonably predict how much smoke ~~and at what locations~~ can be put into the atmosphere, **and at what locations**, without likelihood of threat to air quality objectives. This information is then converted into instructions to field administrators and burn bosses as to what tonnages, in what weather zones and at what distances from SSRAs prescribed burning may be permitted.

(6) The forecast and instructions are made available to field administrators and any interested parties by 3:15 p.m. each day, as necessary. Locally, planned burns are compared against the forecast and instructions, as well as any local prioritization of burns, to determine which burns, if any, will be permitted on the following day. If there are any changes in the forecast for the day of the burn, the Smoke Management forecast unit will make every effort to place a message on an automatic answering phone by 8 a.m.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0230

Burn Procedures

(1) Before any prescribed burning is initiated, burn bosses should have a well thought out plan that takes into account:

(a) How weather will be monitored and changes in conditions will be communicated;

(b) Resources needed and actions taken to reduce pre-burn fuel loadings to minimize emissions.

~~(b)~~ Resources necessary to accomplish ignition and ignition sequences;

(ed) Resources and methodology necessary to contain and control the fire and prevent its escape, including communications to access additional resources, if necessary; and

~~(de)~~ **The Smoke Management forecast and how** the burn will be conducted to ~~avoid~~ **minimize** smoke entering SSRAs, ~~or~~ other areas sensitive to smoke, **and other communities**. ~~and to minimize smoke effects on other communities.~~

(2) The forester may require that a written burn plan be prepared for approval under OAR 629-043-0026(4), prior to issuance of a burn permit. A prescribed fire plan is required under federal policy for all prescribed burning on federal lands.

(3) Prescribed burn operations with large tonnages (2000 tons or more) or burns that will occur over multiple days should be adequately planned and monitored to provide opportunities to cease lighting and hold the existing burn within smaller compartments **in order** to mitigate undesirable smoke effects or changes in the actual burn conditions from those that were forecasted.

(4) For prescription burn units on forestland subject to Level 1 regulation, burn bosses must provide specific information to be transmitted to the Smoke Management forecast unit in a standard format acceptable to the forester, regarding unit location, method of burning, and fuel loading tonnages by the day of the burn. If additional burning is deemed possible after 10 a.m. in consultation with the forecast unit, the plan deadline may be extended.

(5)(a) Before ignition of any prescribed burning in a fire season (as designated by the forester under ORS 477.505), the burn boss must obtain a permit to burn from the forester as required by ORS 477.515 (not required for federal land management agencies). Federal land management agencies must follow agency policies that provide for an affirmative "go-no go decision" before ignition of any prescribed burning as documented and approved by the federal land management agency's line officer.

(b) A permit to burn from the forester is also required for all prescribed burning on non-federal Class 1 forestland in western Oregon at any time of the year.

(c) Under ORS 477.515(1)(a), the forester may waive the requirement for a burn permit in instances of burning other than described in subsections (a) and (b) of this section, so burn bosses should check with the forester locally to determine whether permits are required outside fire season.

(6) Before ignition of any prescribed burning on forestland subject to Level 1 regulation, the burn boss must obtain the current Smoke Management forecast and instructions and must conduct the burning in compliance with the instructions. Burn bosses must make provisions to be informed if the forecast or instructions are subsequently changed. Through communication among the burn boss, field administrator and the Smoke Management forecast unit, based on information specifically relevant to the burn location, a burn boss may obtain a variance from the instructions, but must document the time and method of communication and adhere strictly to the conditions of the variance.

(7) For prescribed burn operations with large tonnages (greater than 2000 tons) or burns that will occur over multiple days, burn bosses may request at least two days in advance that a special forecast and instructions be issued to ensure adequate attention to meeting Smoke Management Plan objectives. Issuance of a special forecast and instructions will be solely within the discretion of the Smoke Management forecast unit based on workload and sufficient local information to support the forecast.

(8) The Smoke Management forecast unit, in developing instructions, and each field administrator issuing burn permits are directed to manage the prescribed burning on forest land in connection with the management of other aspects of the environment in order to maintain a satisfactory atmospheric environment in SSRAs. This direction is to be applied to situations in which prescribed burning may impact SSRAs or other areas sensitive to smoke.

(9) Each burn boss or field administrator must validate that forecasted weather conditions are consistent with actual on-site conditions prior to ignition of burns.

(10) A burn boss is required to ~~stop~~ **terminate** ignition, in a manner that does not compromise worker safety or the ability to prevent escape of the burn, if either of the following occurs:

(a) The burn boss determines, or is advised by a field administrator, that an SSRA, or other area sensitive to smoke is already adversely affected by the burn or would likely become so with additional burning; or

(b) The burn boss receives notice from the forester, through the Smoke Management forecast unit, or following consultation with **DEQ** ~~the Department of Environmental Quality~~, that air in the entire state or portion thereof is, or would likely become adversely affected by smoke.

(11) Upon ~~stopping~~ **termination** of ignition required by section (10) of this rule, any burning already under way should be completed, residual burning should be extinguished as soon as practicable, and no additional burning may be attempted until approval has been received from the forester.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0300

Registration of Intent to Burn

(1) In all instances of prescribed burning on forestland within a forest protection district, the operator, federal land manager, landowner, or timber owner must first register with the forester all forestland that is intended to be burned. For forestland subject to Level 1

regulation, burn registration must be completed at least seven days before the first day of ignition.

(2) The forester may waive the seven-day waiting period required in section (1) of this rule contingent upon the forester's approval of a burn plan or conditions of federally prescribed fire policies having already been met.

(3) Information provided for burn registration must be complete and recorded in a standard format approved by the forester.

(4) No operator, federal land management agency, landowner or timber owner shall be allowed to register additional forestland for burning if payment for their previous registration or burning, when required pursuant to OAR 629-048-0310, is more than 90 days past due.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0310

Fees for Prescribed Burning

(1) Any prescribed burning on forestland subject to level 1 regulation (OAR 629-048-0100) requires payment of a non-refundable registration fee of \$.50/acre and upon accomplishment (see section (3) of this rule), a burn fee as further described in sections (2), (3), (5), (6) and (8) below.

(2) Burn fees for all forms of prescribed burning, including but not limited to, broadcast burning and burning of piles (whether in-unit, on landings, or from rights-of-way) shall be assessed (where required) against the total acres in the unit from which the forest fuels were accumulated, as described in the burn registration.

(3) The first time that fire is applied to a prescribed burn unit, regardless of actual accomplishment, payment of a burn fee is required. Burn fees shall be charged according to the following schedule:

(a) If the registration of planned burning includes only landing or right-of-way piles, the burn fee shall be \$.50 per acre registered. Subsequent attempts to improve accomplishment only in landing or right-of-way piles in the same unit, in the same calendar year or the two following calendar years, shall not incur additional fees.

(b) If the registration of planned burning includes other than landing or right-of-way piles, the burn fee shall be \$3.10 per acre registered. Subsequent attempts to improve accomplishment in any portion of the same unit, in the same calendar year or the two following calendar years, shall not incur additional fees.

(c) If the registration of planned burning includes any combination of burn treatments that include landing or right-of-way piles with broadcast or in-unit pile burning, the burn fee shall be \$2.60 per acre for each in-unit treatment registered upon the first attempt of each treatment. Landing or right-of-way piles will be \$.50 per acre registered upon the first attempt ~~to burn of burning~~ any of those piles. Subsequent attempts to improve accomplishment in any portion of the same unit, in the same calendar year or the two following calendar years, shall not incur additional fees.

(4) (a) As used in this rule, "landing" means any location logs are yarded to for processing (trimming ends or limbs and tops remaining after yarding) and assembling for forwarding or loading onto trucks, including each loading site that may occur along a road. Consequently, a landing pile contains only those residues resulting from the processing, and not additional forest fuels accumulated from growth on the site or the felling process.

(b) As used in this rule, "right-of-way piles" means any accumulated forest fuels that come only from the area cleared in the pioneering stage of road construction after appropriate utilization.

(5) Areas burned as a result of escaped fires that are outside the description of the registered burn area shall not be assessed fees if the fire outside of the described area is immediately attacked for wildfire suppression. If the fire outside of the described area is managed as a prescribed fire then every additional acre burned shall incur a registration fee of \$.50 per acre and a burn fee of \$3.10 per acre.

(6) Notwithstanding section (3) of this rule, forest health maintenance burning on forestland subject to Level 1 regulation, where significant fuel reduction has been accomplished through underburning within the last five years and where there are no piled forest fuels on the site, shall be charged a burn fee of \$.50 per acre.

(7) The forester shall prepare monthly billings to collect the appropriate registration and burn fees from the operator, federal land manager, landowner or timber owner whose name is recorded on the registration form for billing purposes.

(8) Notwithstanding sections (1) and (3) of this rule, each burn unit requires a minimum combined registration and burn fee of \$30. To reduce processing costs, the forester may elect to collect both registration and burn fees prior to accomplishment, for **landing, right-of-way, or maintenance** units less than ~~20-30~~ acres on one combined billing. **The forester may elect to collect both registration and burn fees prior to accomplishment, for broadcast, underburning, or in-unit piles units less than 9 acres on one combined billing.**

(9) Notwithstanding sections (1), (3) and (7) of this rule, in accordance with ORS 477.562(6), a federal land management agency may enter into a cooperative agreement with the forester for payment of registration and burn fees at an annual flat rate. The rate shall be based on estimated acres to be treated as a percentage of total acres on all ownerships, applied against the overall annual estimated operating cost of the Smoke Management Plan.

Any such agreement shall have a provision that allows for periodic adjustment of the rate based on actual experience.

(10) Notwithstanding section (7) of this rule, any person or entity described in ORS 477.406(1) with a prior record of timely payment may, at the discretion of the forester, enter into a cooperative agreement for the efficient administration and payment of registration and burn fees provided all payments equal no less than the registration rate described in section (1) of this rule times the number of acres registered plus the burn fee rate in sections (3) or (6) of this rule, as appropriate, times the number of acres accomplished.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0320

Reporting of Accomplishments

(1) Accomplishment information for all prescribed burning that takes place on forestland within the regulated area described in OAR 629-048-0100 must be recorded in a manner that details the amount of burning ~~and emissions produced for each day of burning~~ and must be reported to the department according to the schedule described below and in standard formats prescribed by the forester.

(2) Prescribed burning on forestland subject to Level 1 regulation must be reported the next business day following each day's ignition as described in Department Directive 1-4-1-601, "Operational Guidance for the Oregon Smoke Management Program, Appendix 1."

(3) Prescribed burning on forestland subject to Level 2 regulation must be reported by the first business day of the week following ignition as described in Department Directive 1-4-1-601, "Operational Guidance for the Oregon Smoke Management Program, Appendix 1."

~~[ED. NOTE: Appendix referenced is available from the agency.]~~

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0330

Emission Inventories

(1) In addition to the emissions information collected from prescribed burning under OAR 629-048-0320, the forester will annually estimate, using appropriate models and the best available information on acres burned and fuel type, the emissions produced by wildfires in

Oregon. At a minimum, the forester will attempt to collect information about wildfires that burn on forestlands within a forest protection district.

(2) Emissions information from prescribed burning and from wildfires will be maintained as distinct inventories, in appropriate forms, for analysis and distribution to improve the overall understanding of the relationships of wildfire versus prescribed fire emissions.

(3) The forester may include as much information on wildfires as may be readily available from the various protection agencies and other cooperators, provided that gathering of such information does not create an unfunded cost to the Smoke Management program.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0400

Coordination with Other Regulating Jurisdictions and for Other Pollutants

(1) In order to meet the air quality maintenance and visibility objectives of the Smoke Management Plan (OAR 629-048-0120 and 629-048-0130), it is important that the forester, field administrators and other cooperators be well informed as to the existence of, or potential for smoke or other airborne pollutants other than that which will be produced by any planned prescribed burning in the affected airshed. Local field administrators are encouraged to maintain working relationships with other local jurisdictions that authorize open burning or monitor air quality so that all parties may be adequately informed of planned burns or conditions that cumulatively might exceed standards or objectives.

(2) The forester is required to report the weather forecast, planned and accomplished burning and smoke intrusions, if any, to the Department of Environmental Quality for each applicable day, on a timely basis.

(3) Any wildfire that has the potential for smoke input into an SSRA or other area sensitive to smoke must be reported immediately by the local unit of the state or federal agency with jurisdiction for fire suppression to the State Forester's office.

(4) The Smoke Management forecast unit will communicate periodically with appropriate prescribed burning regulators in the surrounding states for the purpose of coordination and information sharing, as appropriate.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0450

Program Evaluation and Adaptive Management

(1) The department is responsible for analysis and evaluation of the prescribed burning operations conducted under the Smoke Management Plan.

(2) Reports summarizing annual activities of the program shall be published by the department addressing:

(a) The level of burning activity;

(b) ~~Results with regard to avoiding entrance of smoke into SSRAs and other areas sensitive to smoke and reports of any smoke intrusions~~ **Smoke intrusions and smoke incidents;**

(c) **PM2.5 NAAQS exceedances caused by prescribed burning and actions taken to prevent reoccurrence as described in OAR 629-048-0110(5).**

(ed) Accomplishment of alternatives to burning and the use of emission reduction techniques;

(~~de~~) Evaluation of overall Smoke Management Plan accomplishment;

(ef) Evaluation of adequacy of listed SSRAs and protection measures;

(~~fg~~) Any other pertinent information related to Smoke Management Plan evaluation and improvement; and

(~~gh~~) Revenues generated from burn fees and related Smoke Management Plan costs.

(3) Copies of the reports described in section (2) of this rule will be made available to all interested parties.

(4) Upon publication of a report in accordance with section (2) of this rule, the forester will consult at least annually with the Smoke Management Advisory Committee created under ORS 477.556. Topics will include, but are not limited to, Smoke Management Plan implementation, status of the Oregon Forest Smoke Management Account (ORS 477.560), and any fee changes that may be appropriate based on the balance in this account.

(5) ~~ODF The Department of Forestry and DEQ the Department of Environmental Quality~~ will jointly review the Smoke Management Plan every five years unless there is agreement by both agencies that the plan can be reviewed at an earlier or later date, not to exceed 10 years from the previous review. Results of the review will be presented to the State Forester and the Director of Environmental Quality for joint consideration and approval. Representatives of affected agencies may assist the review at the discretion of the State Forester.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041
Stats. Implemented: ORS 477.013, 477.515, 477.562
Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

629-048-0500

Enforcement

(1) Violations of the Smoke Management Plan may be enforced either as violations of the fire prevention statutes and rules (ORS 477.980 to 477.993) or as violations of the forest practice rules (ORS 527.680 to 527.690, 527.990 to 527.992 and OAR 629-670).

(2)(a) When, in the judgment of the forester, a violation is related primarily to an act or omission that has caused or might cause fire to burn uncontrolled, enforcement under the provisions of the fire prevention statutes and rules is appropriate.

(b) When, in the judgment of the forester, a violation is related primarily to an act or omission that has caused or might cause deterioration of air quality, enforcement under the provisions of the Forest Practices Act and rules (specifically, OAR 629-615-0300) is appropriate.

(3) Enforceable standards within the Smoke Management Plan include requirements to:

(a) Register burns prior to ignition (OAR 629-048-0230(4) and 629-048-0300);

(b) Obtain approval for and follow a burn plan (OAR 629-048-0230(2) and 629-043-0026(4));

(c) Obtain a burn permit and comply with any conditions included therein (OAR 629-048-0230(5) and ORS 477.515);

(d) Obtain and comply with daily Smoke Management instructions and updates (OAR 629-048-0230(6));

(e) Comply with restrictions regarding use of ~~polyethylene~~ covers on burn piles (OAR 629-048-0210(4));

(f) Cease burning when directed by the forester (OAR 629-048-0100(4) and 629-048-0230(10));

(g) Report accomplishments (OAR 629-048-0320); and

(h) Pay fees (OAR 629-048-0310).

(4) Section 118 of the federal Clean Air Act provides for enforcement of state air quality regulations against federal agencies. It will be the policy of the Board of Forestry, in the

event of a failure of a federal land management agency to comply with the Smoke Management Plan, that the forester will first inform the responsible agency of the failure and coordinate efforts to ensure timely correction of any breakdowns in procedure that may have resulted in the failure. However, if this method does not appear in the judgment of the State Forester to result in necessary correction of procedures, or under other circumstances that in the judgment of the State Forester warrant further action, enforcement action may be taken as with any other responsible party.

Stat. Auth: ORS 477.013, 477.562, 526.016, 526.041

Stats. Implemented: ORS 477.013, 477.515, 477.562

Hist.: DOF 4-2007, f. 12-31-07, cert. ef. 1-1-08

ODF Fiscal Impact Statement

Secretary of State

STATEMENT OF NEED AND FISCAL IMPACT

A Notice of Proposed Rulemaking Hearing or a Notice of Proposed Rulemaking accompanies this form.

Oregon Department of Forestry – Fire Protection Division

629

Agency and Division

Administrative Rules Chapter Number

Oregon Smoke Management Plan Revision and Update

Rule Caption (Not more than 15 words that reasonably identifies the subject matter of the agency's intended action.)

In the Matter of: Revision of the Oregon Smoke Management Plan

Statutory Authority: ORS 477.013 and 477.562

Other Authority: ORS 526.016 and 526.041

Stats. Implemented: ORS 477.013, 477.515 and 477.552 to 477.562

Need for the Rule(s): The federal Clean Air Act requires states to periodically update their state implementation plans to demonstrate continued progress toward meeting federal air quality standards. One part of the state's implementation plan is the management of forestry prescribed burning through the Oregon Smoke Management Plan administered by the State Forester. The plan was recently reviewed and determined to need updating to examine the state policy of prescribed burning as used to mitigate wildfire and improve forest health. Changes to the rule include changing the definition of a smoke intrusion to match a health-based standard, developing a community response plan to notify residents of Smoke Sensitive Receptor Areas that smoke may impact their community at greater intervals, expanded use of polyethylene sheeting to keep burn piles dry for burning later in the fall season, and other related alterations based on the above major changes.

Documents Relied Upon, and where they are available: The rule changes are based on recommendations provided by both Oregon Department of Forestry and Department of Environmental Quality informed by a Smoke Management Review Committee. They are found in a staff report and draft update to OAR 629-048, presented at the June 6th, 2018 Board of Forestry meeting. Copies of the report and Board minutes can be viewed or made available by contacting Jenna Nelson, Rules Coordinator, 2600 State St. Salem, Oregon 97310; telephone (503) 945-7444; or email at jenna.a.nelson@oregon.gov.

Fiscal and Economic Impact: While there are a number of rule changes, only one appears like it may have an indirect fiscal impact. A new rule will allow for an increase in prescribed burning

because of a change in the “smoke intrusion” definition. This change will allow for a greater amount of smoke to enter Smoke Sensitive Receptor Areas (SSRAs) before it’s considered a smoke intrusion. To mitigate the effects of increased smoke, community response plans will be implemented in SSRAs vulnerable to prescribed burning smoke.

Statement of Cost of Compliance:

1. Impact on state agencies, units of local government and the public (ORS 183.335(2)(b)(E)): Expect some additional workload on forest districts that have SSRAs within or near their protection boundaries as they assist in the development of community response plans. Additional workload would be absorbed by the affected district with minimal fiscal impact. However, the local government, especially local public health authorities, may have additional fiscal impact as a part of notifying health vulnerable citizens of SSRAs that have increased risk of prescribed burning smoke exposure. It’s difficult to determine the costs of additional communication to notify vulnerable populations but estimates could range up to a few thousand dollars.

2. Cost of compliance effect on small business (ORS 183.336):

a. Estimate the number of small businesses and types of business and industries with small businesses subject to the rule: There are more than 2500 small landowners who have forestland and occasionally pay registration and burn fees.

b. Projected reporting, recordkeeping and other administrative activities required for compliance, including costs of professional services: To set up a community response plan would likely require administrative activities of coordinating between several governmental agencies, businesses, and other stakeholder interests in developing a plan. Potential costs could range up to a few thousand dollars.

c. Equipment, supplies, labor and increased administration required for compliance: Costs to develop and implement a plan may range up to a few thousand dollars.

How were small businesses involved in the development of this rule? Rule development was discussed routinely with the Smoke Management Review Committee as well as receiving a final review by the Smoke Management Advisory Committee (required under ORS 477.556). Both the Review Committee and Advisory Committee included representatives from industrial forest landowners and non-industrial forest landowners. In addition, all meetings of both committees were open to the public with public comment periods available.

Administrative Rule Advisory Committee consulted? Yes. The Smoke Management Review Committee was established for the purpose of recommending changes and improvements to the Oregon Smoke Management Plan. Rule development was reviewed by the Smoke Management Advisory Committee.

Signature
Date

Printed name

Administrative Rules Unit, Archives Division, Secretary of State, 800 Summer Street NE, Salem, Oregon 97310.

**DIRECTIVE 07/14 1-4-1-601 - OPERATIONAL GUIDANCE FOR
THE OREGON SMOKE MANAGEMENT PROGRAM**

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

POLICY: This directive provides operational procedures to implement the Oregon Smoke Management Plan. The objectives of the Smoke Management Plan are to:

- A. Minimize smoke emissions resulting from prescribed burning as described by ORS 477.552.
- B. Provide maximum opportunity for essential forestland burning;
- C. Protect public health by avoiding intrusions;
- D. Coordinate with other state smoke management programs;
- E. Comply with state and federal air quality and visibility requirements; and
- F. Promote the further development of techniques to minimize emissions by encouraging cost-effective utilization of forestland biomass, alternatives to burning, and emission reduction techniques.

AUTHORITY: This directive implements ORS 477.013, 477.515, ORS 477.552 through 562, OAR 629-043-0040, and OAR 629-048-0001 through 629-048-0500.

DEFINITIONS: See OAR 629-048-0005.

STANDARDS:

- A. The Smoke Management Rules: The Smoke Management administrative rules (OAR 629-048-0001 through 629-048-0500) provide a specific framework for the administration of the Smoke Management program by the State Forester. The plan requires the State Forester and each field administrator to maintain a satisfactory atmospheric environment in SSRAs, federal Class I Areas, and other areas sensitive to smoke (OAR 629-048-0230(8)).

In administering the Smoke Management Plan, the State Forester and the field administrators will monitor weather and air quality conditions in SSRAs and other areas sensitive to smoke.

In order to meet air quality standards and the objectives stated above, restrictions on prescribed forestland burning are applied through issuance of Smoke Management instructions by the State Forester in order to limit the amount of particulate matter that is released into the airshed.

- B. Plan Applicability: The Smoke Management Plan applies to all lands classified as forestland under ORS 526.305 to 526.370 and all federally managed forestland, whether or not classified, within a forest protection district. See OAR 629-048-0100 for specifics. In general, all federal forestland and Class 1 forestland in Western Oregon is regulated at a

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

higher level but all forestland owners and managers must comply with various aspects of the program.

C. Smoke Management Forecasts and Instructions: To minimize the amount of smoke entering SSRAs, as described in OAR 629-048-0140, and other areas sensitive to smoke (OAR 629-048-0005(22)). The Smoke Management forecast unit issues daily forecasts and instructions during periods of substantial prescribed burning.

1. Smoke Management forecasts shall be issued as needed for three regions within the regulated area; Western Oregon, including Fire Weather Zones 601 through 612, Zones 615 through 623, and 639; Central and Northeast Oregon, including Fire Weather Zones 640 through 646; and South-Central Oregon, including Fire Weather Zones 624 and 625.

Written Smoke Management forecasts are normally issued during the period from late March through June and late September through December, when significant prescribed burning is being conducted. Forecasts are written at other times as dictated by weather and the level of burning. Special written forecasts shall be issued when requested for specific burns, as forecaster workload permits.

Scheduled forecasts shall be issued in mid afternoon and are valid for the next day. Forecasts shall be disseminated no later than 3:15 p.m. When necessary, an updated forecast shall be issued if significant changes from the previous forecast have occurred or are expected. When possible, updated forecasts will be issued in the early morning, normally before 8:00 a.m. However, updates may be issued at other times when necessary.

- a. Dissemination. Forecasts shall be disseminated by e-mail and made available on the Oregon Department of Forestry web site (<http://www.oregon.gov/ODF/Fire/Pages/Burn.aspx>). The Western Oregon forecast shall also be placed on a telephone message recording.
 - b. Content. Forecasts include four main sections: a general discussion of the weather expected through the forecast period; specific mixing, transport wind, and surface wind forecasts; a general outlook for the following three days; and daily outlooks for mixing height, transport wind, and surface wind. Updated forecasts may not include outlooks.
2. Instructions and/or advisories shall be issued in conjunction with each Smoke Management forecast. For forestland included in Level 1 regulation, as defined in OAR 629-048-0005(19), instructions detail the locations and amounts of material that may be burned, provide minimum separation from SSRAs, and other restrictions as may be necessary to minimize smoke impacts. In areas of

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

Level 2 regulation, the information may be considered an advisory but adherence is strongly encouraged and burn bosses should use the forecasts and instructions to minimize the possibility of drifting smoke into SSRAs.

- a. When significant burning is taking place, the Smoke Management forecast unit shall issue written instructions with the forecasts. Outside the period when written forecasts and instructions are issued, burning shall be carried out only after consultation with the forecaster.
 - b. Special Protection Zones (SPZ) have been established around certain communities requiring additional protection from particulates. Any burning in an SPZ, during its protection period, must have the approval of the meteorologist. Specific control strategy restrictions for these areas adopted by the Department of Environmental Quality (DEQ) and Oregon Department of Forestry (ODF) are found in OAR 629-048-0135 and OAR 629-048-0137. SPZ maps are found in Appendix 5.
 - c. Air Stagnation Advisories (ASA) are issued by National Weather Service forecast offices for areas where atmospheric conditions are likely to allow air pollutants to accumulate for an extended period. Burning within the area of an ASA must be closely controlled and Smoke Management instructions issued when an ASA is in effect will limit forestland burning to units which are not expected to worsen air quality within the area. Similar restrictions shall apply for areas for which an air pollution alert has been issued by DEQ.
 - d. The instructions shall be considered a directive from the State Forester for all burning in areas of Level 1 regulation. Any planned variances from the daily burning instructions must be discussed with the Smoke Management duty forecaster. OAR 629-048-0230(6) requires that variances from the instructions must be documented by the burn boss. In addition, variances or revisions to the instructions will be logged by the Smoke Management forecaster as workload permits.
 - e. For forestland included in Level 2 regulation, (OAR 629-048-0005(20)), compliance with the Smoke Management instructions is encouraged. Instructions will identify the amount of material that may be burned, those locations where burns should not be conducted, and other special considerations necessary to minimize the amount of smoke from being carried into SSRAs.
- D. Burning Operations: All burning must be conducted in compliance with the Smoke Management Plan. The burn procedures of OAR 629-048-0230 set the minimum requirements that must be met for conducting each prescribed burn.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

1. In areas of Level 1 regulation, units must be registered for burning seven days prior to burning (OAR 629-048-0300), planned in the data system the day of the proposed burn (OAR 629-048-0230(4)), and accomplishments reported the first business day following the actual burn (OAR 629-048-0320) and each additional day that burning is conducted in the unit.
 2. For forestland subject to Level 2 regulation, burning is not required to be planned prior to burning. However, all burns must be registered prior to burning and accomplishment reported by the first business day of the week following ignition. Specific requirements for reporting are detailed in Appendix 1.
 3. In addition to adhering to the restrictions of the Smoke Management forecasts and instructions, burn bosses must monitor on-site conditions and be prepared to terminate ignition or take other appropriate action if conditions warrant. Burns conducted in areas of Level 2 regulation are not required to adhere to the instructions/advisories but are strongly encouraged to follow the guidance and burn in such a manner to minimize smoke impacting SSRAs or other smoke sensitive areas.
 4. The Smoke Management forecaster should be consulted before burning under marginal dispersal conditions and for large or multi-day burns. If notified at least two days in advance of extended period burns and burns greater than 2000 tons, the Smoke Management forecaster will, workload permitting, prepare a forecast specific to the unit being burned.
- E. Monitoring: When necessary, the State Forester shall monitor prescribed burning operations by aircraft and/or other means to ensure compliance with the Smoke Management Plan and to determine the effectiveness of Smoke Management procedures. During marginal conditions or when burning is being conducted near SSRAs or other smoke sensitive areas, monitoring of smoke behavior should be intensified as needed by using lookouts, aerial observations, and on-site observations of smoke behavior. A recommended aerial monitoring form is provided in Appendix 4. For some areas, near real-time data from DEQ air quality monitors and cameras are available via the internet. This information is used in the preparation and validation of daily Smoke Management instructions and in the evaluation of smoke impacts.
- F. Audits: To evaluate compliance with the Smoke Management Plan, the State Forester shall conduct a review of approximately one percent of the units burned each year in areas under Level 1 regulation. Approximately one-half of the audits will be conducted on the day of the burn and approximately one-half will be pre-burn audits. All units to be audited shall be randomly selected. Each burn day audit shall include a site visit during burning, visual tracking and documentation of smoke behavior and movement, and a determination of compliance with: (a) the conditions of the burning permit, (b) the

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

provisions of the Smoke Management administrative rules and directives, and (c) the applicable Smoke Management burning instructions. Each pre-burn audit shall include a site visit before burning. An independent fuel inventory shall be conducted to validate accuracy of tonnage estimates.

Following completion of the audits, a written report of all findings must be prepared and forwarded to the Smoke Management unit. Results of these audits shall be summarized and included in the reports of annual Smoke Management activities.

- G. Reporting and Analysis: Data for all prescribed forestland burning throughout the state must be entered into the Smoke Management data system.

The Smoke Management data system is maintained to provide for analysis of the program, manage the collection of burn fees, and provide for calculation of prescribed burning emissions. Data for registered, planned, and accomplished burn units shall be reported in accordance with Appendix 1.

1. Alternative practices to reduce burning are contained in OAR 629-048-0200. Field administrators and federal land managers are encouraged to report application of these practices with an estimate of the reduction of material burned to the Smoke Management unit.
2. Use of best burn practices to reduce emissions (OAR 629-048-0210) is encouraged to minimize emissions. Additional information on emission reduction techniques and alternative practices may be accessed through the ODF web pages on the Internet. Informing the Smoke Management unit of specific actions taken to reduce emissions is encouraged.

- H. Smoke Impacts: There are two types of smoke impacts: verified smoke intrusions of smoke into SSRAs and verified smoke incidents where significant smoke enters an SSRA at levels below a smoke intrusion (OAR 629-048-0005(27), a Class I Area or other sensitive/populated areas. For two Class I Areas, extra effort (use of test fires or balloon releases to check wind direction or coordinating with the duty forecaster) is needed to keep smoke from the main plume of a prescribed burn from impacting the Kalmiopsis Wilderness and Crater Lake National Park during October and November. If a complaint is received, or district personnel become aware of a smoke intrusion or smoke incident, the District Forester shall assign a qualified individual to conduct an investigation and document the findings.

1. Smoke Intrusions (OAR 629-048-0110): An intrusion occurs when verified smoke from prescribed burning enters an SSRA at levels defined in OAR 629-048-0005 (27). For every smoke intrusion, the source of the impact, the duration, and the magnitude of the intrusion will be determined, if possible. Magnitude shall be determined using particulate matter readings when available, or estimated from

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

the reduction of visibility in the smoke intrusion or smoke incident area.

When particulate matter readings are available, smoke incidents or smoke intrusions will be characterized based on particulate matter values averaged over a one-hour period, or a 24-hour period from midnight to midnight beginning on the first day of smoke entrance.

- a. Visibility: If no particulate matter data is available, or if smoke impacting a community is not observed by a particulate monitor, the short-term (hourly) impact may be estimated from reduction of the prevailing visibility. Distinguishing between a smoke intrusion or a smoke incident based on visibility estimates shall be characterized as follows:

SMOKE INTRUSION/INCIDENT CLASSIFICATION BASED ON VISIBILITY REDUCTION (RV)

(For instructions on estimation of visibility see Appendix 2)

Baseline Visibility (Miles)*	INTRUSION VS INCIDENT	
	INCIDENT	INTRUSION
>50	RV ≥ 4.6	RV < 4.6
25 - 50	RV ≥ 4.4	RV < 4.4
20 - 24	RV ≥ 4.1	RV < 4.1
15 - 19	RV ≥ 3.8	RV < 3.8
10 - 14	RV ≥ 3.5	RV < 3.5
5 - 9	RV ≥ 2.5	RV < 2.5
3 - 4	RV ≥ 1.8	RV < 1.8
1 - 2	RV ≥ 0.5	RV < 0.5
< 1	-	RV = 0

*Baseline visibility is based on optimal visibility with little, if any, discernable visibility restriction. Visibility changes due to naturally occurring phenomena must be factored into the classification as needed (e.g., the change from daylight to dark, blowing dust or sand, rain, fog, etc.)

2. Smoke Intrusion Reporting:

- a. Preliminary reports shall be issued by the Smoke Management forecasters when they become aware that smoke has entered, an SSRA reaching intrusion criteria (OAR 629-048-0005(27)). Field administrators must inform the forecaster as soon as they become aware of impacts. Preliminary reports shall be transmitted via email to interested parties as

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

soon as practical.

- b. Final smoke intrusion reports shall be prepared for all smoke intrusions. The report consists of two sections. The first section is completed by the Smoke Management forecaster within two working days and submitted to the burn boss or district forester for completion. The report is then returned to Smoke Management and distributed to interested agencies. A report format is provided in Appendix 2.
 - c. Smoke intrusions that meet or exceed the 24-hour average PM_{2.5} value of 35 micrograms per cubic meter (National Ambient Air Quality Standard) exceedance will be reported to Smoke Management and the Department of Environmental Quality (DEQ) as soon as possible, but no later than 1 business day after the burn is completed. Reporting will be similar to smoke intrusions but will include management actions (see Appendix 2) to prevent this type of intrusion from occurring in the future. ODF and DEQ will coordinate and agree to what preventative actions will be taken.
3. Smoke incidents: The entry of smoke into Class I Areas, smoke sensitive areas, populated areas that are not designated as SSRAs, or enter SSRAs below the levels of an intrusion shall be evaluated and logged internally, describing the date, time, duration, location, magnitude (if available), area affected, responsible agency, and any noteworthy comments. A smoke incident log is provided in Appendix 2.
- I. Complaints: Complaints shall be investigated, appropriately treated, recorded, and the complainant informed of the investigation results in a timely (consistent with other workload), courteous, and professional manner. Data gathered through complaint investigation shall be reported periodically in accordance with OAR 629-048-0450.

A complaint is any report of smoke alleged to be from forestry activity that may adversely impact public health or protected visibility. Any grievance, tip, information, or inquiry which (1) calls into question forest prescribed burning practices such that an on-site investigation is deemed necessary, or (2) appears likely to be a recurring problem such that documentation seems necessary should be treated as a complaint.

1. Receiving Complaints: Districts and Salem Smoke Management staff shall:
 - a. Respond to the complainant in a timely manner.
 - b. Follow up with appropriate action to the satisfaction of the District Forester.
 - c. Maintain a written record containing at least: the nature of the complaint, names of those involved in the investigation, findings, and action taken.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

This record shall be kept on file for two years. Copies shall be sent to the area office and the Salem Smoke Management unit.

- d. Inform the complainant of the opportunity to receive follow up of investigation findings.
2. Initial Contact: When a complaint is received, the person receiving the complaint should use the Smoke Complaint Report form found in Appendix 2 of this directive to record the name(s) of the complainant, the description of the complaint, and where the problem is located. If the complaint is received in Salem or by a district other than the one with geographic responsibility, it shall be referred immediately by the person taking the complaint to the proper district.
 - a. If the complainant begins to provide information about health effects resulting from a smoke incident, interrupt the complainant to explain that medical information received by the ODF will become part of the public record and confidentiality cannot be assured.
 - b. If a smoke incident or smoke intrusion is ongoing when the complaint is received, reasonable effort should be made to dispatch the nearest qualified department personnel to the location in question to observe and document the date, time, duration, magnitude, location, scope, and origin of the smoke.
 3. Investigation: Other agencies that may have a role in investigating a complaint shall be promptly informed after the initial contact. ODF personnel will cooperate with other agencies involved in joint complaint investigations.
 - a. If the complaint involves an ongoing occurrence, an individual qualified to and capable of investigating the complaint shall be dispatched to the scene immediately. Exceptions must be approved by the District Forester.

If the problem does not require immediate attention, an onsite investigation may be made at the earliest convenience if such site inspection will contribute to the resolution. In all cases, the complainant should be informed of the planned inspection time, if appropriate.
 - b. Observations, notes, and evidence (if appropriate) shall be made/collected in order to make the following determinations:
 - i.* Does the problem involve the Smoke Management Plan (prescribed burning of forest fuels on forestland)?
 - ii.* Are there any violations? (If so, follow proper enforcement procedures.)

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

iii. What may be done to correct the problem?

iv. What actions may be taken to prevent recurrence of the impact?

4. Follow-up: After the investigation is completed, and with the approval of the District Forester on the findings and any necessary follow-up action, complainants who requested investigation information should be contacted and informed of the findings and follow-up action.
5. Reports: A written complaint investigation report or intrusion report as appropriate must be made for all complaints received. For most complaints, use the complaint form in Appendix 2. This form will be sufficient if it contains the minimum information listed above.

For complaints involving violations, or for which evidence has been collected, an expanded investigation report containing pictures, correspondence, and/or other data may be appropriate.

A file of these reports shall be maintained at the district. Copies must be sent to the area office, Salem Smoke Management unit, and other agencies involved in the complaint. A summary of complaints will be made available to the Smoke Management Advisory Committee when requested.

- J. SSRA Listing Evaluation Procedures: OAR 629-048-0150 establishes criteria for evaluating proposed listing of areas as SSRAs. Using these criteria, an evaluation of a recommendation must be made for consideration by the Board of Forestry. Analysis shall be conducted with the assistance of DEQ air quality staff. This evaluation will consider:
1. Review of prior smoke incidents. Reports of incident investigations will be used to quantify the duration, magnitude, and frequency of impact from forestland prescribed burning.
 - a. The cause(s) of the impacts to determine the likelihood of similar events in the future. Consider the potential of repeated or long-lasting impacts.
 - b. The results of objective measurements, monitoring, or study efforts.
 - c. Burning programs/plans for areas that could drift smoke into the area.
 - d. Geographic factors that would tend to funnel smoke into the area.
 - e. Population and trends for population growth within the community under consideration.
 - f. Impact on prescribed burning programs in the surrounding area.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- g. Probability of the area exceeding National Ambient Air Quality Standards due to potential prescribed burning smoke impacts.
- h. Consideration for other air quality improvement projects ongoing or planned for the area.
- i. Analysis of complaints received, community or governing agency concerns, and recommendations for addition of the area.

Once the evaluation is complete, a report of the results of the analysis must be prepared and a joint recommendation of ODF and DEQ must be submitted to the Board of Forestry. In the event an agreement cannot be achieved between the two departments, ODF will include an explanation of the lack of agreement in the recommendation.

- K. Community Response Plan and Exemption Request: With increased potential for smoke impacts into SSRAs and other smoke sensitive areas, OAR 629-048-0180 outlines a communication framework to inform vulnerable SSRAs about the impact of prescribed burning smoke and how a community can know when they may be impacted by it. These communities will be encouraged to develop a response plan to notify their citizens of potential smoke impacts and how they can reduce their exposure.
- 1. ODF Salem headquarters will develop and distribute a communication framework that will include at least the: (1) purpose and importance of prescribed burning, (2) health risks of wildfire and prescribed fire smoke, (3) how SSRA residents can find out about daily burn plans, and (4) notification of potential prescribed burn smoke impacts.
 - 2. ODF and DEQ will recommend that SSRAs which have experienced repeated smoke incidents and intrusions develop a community response plan lead by the local health department, and in coordination with the local ODF or federal forest district office on how to respond when notified that prescribed burning smoke may enter their community.
 - 3. Communities that develop a community response plan may request an exemption to the one-hour intrusion threshold through their local governing body and County Commission. The request for exemption will be considered for approval by ODF and DEQ under the advisement of Oregon Health Authority.
- L. Quantification of Forest Residues: Consistent evaluation of the fuel available and consumed in each prescribed burn is important for estimating the emissions produced during the burn. Accurate pre-burn quantification of material is essential in minimizing errors in the emissions estimates.
- 1. The fuel consumed by a prescribed burn is calculated by:

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- a. Determining total pre-burn fuel tonnage load.
 - b. Determining average pre-burn duff depth, litter depth and type.
 - c. Computing woody fuel consumption using available tools developed to predict woody fuel consumption.
 - d. Calculating and adding duff and litter consumption.
2. Estimation of the total pre-burn fuel tonnage should be through the application of the "planar transect methods" of inventorying forest residue such as the Brown's inventory method, by use of "Photo Series for Quantifying Forest Residue," or through supplemental photographs developed for specific areas and fuel types. Only if the preceding methods cannot be used should other estimation procedures be employed.
- a. Instructions for the actual measurement of fuels are contained in the "Handbook for Inventorying Downed and Woody Material," U.S.D.A. Forest Service General Technical Report INT-16, 24p, Intermountain Forest and Range Experiment Station, Ogden, Utah. Instructions for the ODF fuel-loading technique can be found on the Oregon Smoke Management website.
 - b. Digital Photo Series and other estimation aids may be accessed through ODF Smoke Management web pages.
 - c. Instructions for fuels inventory and consumption procedures are available via the Internet or from the ODF Smoke Management unit.
3. For units that have already been piled, one of the three following methods should be used:
- a. Statistical sample of pile volume is the preferred method. In the statistical sampling method, a randomly selected group of piles is measured and the corresponding pile type is assigned to each sampled pile (Appendix 2). Species of the debris in the piles is determined and calculation of the total material is made through the Piled Fuels Biomass Emissions web application (<https://depts.washington.edu/nwfire/piles/>), BlueSky Playground, Consume, or through manual calculations.
 - b. Aerial photo interpretation may be used when large-scale aerial photographs of slash piles in harvested units can be evaluated to determine dimensions and volumes. References for application of this technique may be obtained via the Internet or the Pacific Northwest Research Station, USFS.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- c. Ocular estimate of pile volumes in which the size and number of piles to be burned is estimated through visual techniques where irregular and differing pile types are “smoothed” to an overall size and shape of pile. Estimate of the total amount of material to be burned is then calculated through one of the approved procedures or computer applications.
4. Consumption of material during the burn is estimated using the same tools as for pre-burn fuel loading or through the use of consumption calculation software applications. Post-burn fuel loading may be estimated using measurement samples or reapplication of the photo series. Additionally, the ODF fuel-loading calculator (http://smkmgt.com/weather/tools/fuel_loading/fuel_loading_tool_home.html), the BlueSky Playground (<https://playground.airfire.org>), or USFS Consume application to estimate fuels consumed during the prescribed burn may be used. These may be obtained on the Internet and are also available from the Smoke Management unit.

RESPONSIBILITIES:

- A. Fire Protection Division Chief: The Fire Protection Division Chief is responsible for the coordination of the Smoke Management Plan with cooperating agencies and state and regional air quality authorities.
- B. Fire Protection Division: The Smoke Management unit is responsible for the day to day operation of the Smoke Management program, including:
 1. Issuing Smoke Management forecasts and instructions. Forecasts and instructions shall be issued daily during periods of substantial burning (normally March through June and late September through December). These forecasts are monitored and updated as necessary. When routine written instructions are not being prepared, meteorologists shall coordinate and approve prescribed burns on a case by case basis.
 2. Maintaining the Smoke Management data system. All forestland burning shall be entered into the data system in accordance with the instructions in Appendix 1.
 3. Coordinating with field administrators and identifying and conducting necessary training.
 4. Monitoring the Smoke Management program and providing required summary reports and information to interested parties. Smoke Management unit personnel will prepare reports summarizing annual forestland prescribed burning activities, pertinent emissions information, and summaries of audits and smoke incidents.

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

- C. Area Directors, District Foresters, and Unit Foresters are responsible for ensuring that the provisions of this directive are met and that prescribed burning activities are conducted within the requirements of the Smoke Management rules.
- D. Field Administrators: ODF and federal land management agency field administrators oversee prescribed burning in accordance with the Smoke Management rules, this directive, and daily Smoke Management instructions.

Federal land managers are required by the federal Clean Air Act to follow the directions of the forester for the protection of air quality in their prescribed burning operations.
- E. Burn Bosses: Forest landowners/operators are responsible to conduct forestland prescribed burning according to the Oregon Smoke Management Plan, requirements of field administrators and the instructions issued by the forester.

REVIEW: The Smoke Management directive shall be reviewed according to OAR 629-048-0450(5). The review will be conducted jointly by the State Forester and the Director of Environmental Quality and will include representatives of affected agencies and parties.

AGREEMENT:

In witness whereof, the parties have agreed to the standards and procedures set forth in this directive.

State of Oregon
Department of Forestry

State of Oregon
Department of Environmental Quality

By: _____
Title: _____
Date: _____

By: _____
Title: _____
Date: _____

|

REPORTING SYSTEM SMOKE MANAGEMENT PLAN

General: ODF maintains a computer database to record and administer Smoke Management data. State and private Smoke Management data is entered by field offices into the database via the ODF network. Federal data is collected and consolidated at the USFS regional office and transferred electronically to ODF.

The reporting system is designed to provide a record of:

- A. Forestland scheduled for prescribed burning.
- B. Locations and amounts of daily planned burning.
- C. Burning that has been accomplished.
- D. Fee collection and administration information.
- E. Historical data for calculation of emission estimates and other summaries.

Area Included: Reporting is required throughout the state. The procedures and requirements for frequency of reporting in different areas of the state are identified below. Data are grouped by administrative units, i.e., national forests, Bureau of Land Management districts, national parks, and state forest protection districts.

Types of Burning to be Reported: All burning related to forest management activities should be included in the reporting system, except as noted below. Examples of reported data include slash and brush disposal after logging, road building, scarification, or burning of brush fields for reforestation.

Types of Burning That Should Not be Included: The following types of burning are not under the authority of the Smoke Management Plan and should not be entered into the Smoke Management data system:

- Burning of household or yard maintenance debris such as paper, leaves, lumber, etc.
- Burning related to agricultural practices, including Christmas tree growing, orchard pruning, and grass or grain stubble burning.
- Burning related to demolition, home or other construction, and building site preparation.
- Any burning done in conjunction with a land use change.

Frequency of Reporting: All burns must be entered into the data system prior to ignition. Detailed are highlighted later in this -Appendix. In areas subject to Level 1 regulation, all planned and accomplished burning is entered into the computer data system on a daily basis. Planned burns shall be entered by the day of the burn and accomplishments are reported on the next working day after the unit is burned. In areas of Level 2 regulation, planning burns in the data system is not required and, although daily reporting is encouraged, accomplishments are required to be reported no later than the first working day of the week following the burn.

Procedures:

- A. For private, and local and state government burning:
1. A unit registration is entered into the data system for each burn unit. Information to be entered is contained in Reporting System Coding Sheet (Part 1). These data are entered into the data system at the local ODF field office. The ODF E-notification number, obtained through the local ODF office, will be used for tracking burn units for all landowners. For Level 1 regulated lands, registration is to be completed at least seven days prior to a planned ignition. Districts may waive the seven-day requirement in accordance with OAR 629-048-0300(2) but all units must be registered prior to burning.
 2. Prior to 10 a.m. the day of the ignition, unit numbers of planned burns in Level 1 regulated areas are entered into the data system by field offices. Part 2 is used to assemble the information needed to plan a burn. A listing of planned burns is then compiled and made available to all interested parties. Right-of-way burns need not be planned on a daily basis.
 3. An accomplishment report for each burn is submitted by field offices the day after burning, using Part 3. Burning on Level 2 regulated lands must be entered into the data system no later than the first working day of the week following the burn. The accomplishments are posted as in paragraph 2 above.
 4. Right-of-way burns shall be registered as per step one, above. Right-of-way burns do not have to be planned prior to burning. Accomplishments are reported in accordance with paragraph 3 above.

B. For federal agency forestland burning:

1. Information required for registration is the same as for non-federal burning but units are entered into the FASTRAX data system developed for use by the federal agencies. The primary unit identifier shall be the E-notification number obtained through the local ODF office, or a non-activity "406" number obtained through the Salem headquarters office. In order to ensure unit information is transferred without error to the Smoke Management database, registration must be completed at least 7 days prior to the planned ignition. This may be waived by the State Forester in specific instances to meet agency needs but all units must be registered prior to burning.
2. Units to be burned the next day shall be planned through FASTRAX by the day of the burning.
3. Burning results for all federal burning shall be reported through FASTRAX the day following the burn.
4. Smoke Management data for federal agencies is consolidated by USFS, Region 6 and is then transmitted electronically to ODF. After this data has been input into the Smoke Management data system, reports of errors and other information is sent back to the USFS to verify receipt of the information and facilitate error correction.
5. To facilitate collection of rangeland burning emissions, data for this burning may be entered into the data system as outlined above, using code "s" as the burn type.

Forms: The following forms below shall be used to gather Smoke Management information for entry into the data system. These forms are available in electronic format on the Smoke Management Internet pages. Locally generated forms are discouraged unless approved by the Smoke Management unit manager.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

OREGON SMOKE REGISTRATION PART 1:

UNIT IDENTIFICATION:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
DATE REGISTERED:					
REGISTRATION #:					
DISTRICT ID:					
OWNERSHIP CODE:					
SALE NAME:					

UNIT INFORMATION:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
TOWNSHIP:					
RANGE:					
SECTION:					
LATITUDE:					
LONGITUDE:					
COUNTY:					
DISTANCE TO SSRA:					
UNIT ACRES:					
CUTTING DATE:					
ELEVATION:					
SLOPE:					
BURN TYPE:					
BURN REASON:					

TREATMENT SUMMARY:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
OPERATOR NAME:					
FUEL SPECIES:					
LANDING R/W ACRES:					
LANDING R/W TONS:					
PILE ACRES:					
PILE TONS:					
BROADCAST ACRES:					
DUFF DEPTH:					

FUEL TONS PER ACRE (SOUND):	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
0 - 1/4"					
1/4 - 1"					
1 - 3"					
3 - 9"					
9 - 20"					
20+ "					

LITTER TYPE:					
LITTER DEPTH:					
LITTER % COVERAGE:					

FUEL TONS PER ACRE (ROTTEN):	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
3 - 9"					
9 - 20"					
20+ "					

ROTTON STUMPS:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
DIAMETER:					
HEIGHT:					
DENSITY:					

LIVE FUELS:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
SHRUB TYPE:					
SHRUB % COVERED:					
SHRUB HEIGHT:					
TONS PER ACRE:					

COMMENTS:

BILLING INFORMATION:	Unit 1:
Vendor ID:	
First Name:	
Last Name:	
Business Name:	
Address 1:	
Address 2:	
City:	
State:	
Zip:	
Phone:	
Suspended:	

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

OREGON SMOKE REGISTRATION - PLANS (Part 2)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Planned Date:					
Planned Time:					
Acres Planned:					
Landing R/W Tons Planned:					
Pile Tons Planned:					
Broadcast Tons/Acres Planned:					

OREGON SMOKE REGISTRATION - ACCOMPLISHMENTS (Part 3)

Actual Burn Date:					
Actual Burn Ignition Time:					
Acres Burned:					
Landing R/W Tons Burned:					
Pile Tons Burned:					
Broadcast Tons/Acres Burned:					

Achieved Rapid Ignition:					
Shrub Consumption:					
Duff Fuel Moisture:					
Fuel Moisture 10 HR %:					
Fuel Moisture 100 HR %:					
Fuel Moisture 1000 HR Code:					
Days Since Significant Rain:					
Wind Speed:					

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

Alternative Smoke Management Registration (Part 1 of 3)



Fee payer Name:		<input type="checkbox"/> Operator		<input type="checkbox"/> Landowner	
Billing	Street:				
Address	City:		State:	Zip Code:	
Phone Number:			Signature:		
Operator Name (if different than fee payer):					
Date Register:			District ID:		
Registration #		(12 digit, including unit, YY-DDU-NNNNN-UU)			
Ownership Type: <input type="checkbox"/> Private (P) <input type="checkbox"/> Fed-Not FS (O) <input type="checkbox"/> R6 Fed (F) <input type="checkbox"/> USFS (U) <input type="checkbox"/> State, County, City (S)					
Sale/Unit Name:					
Legal Location: TWN		S	R N G	W	S E C
County:				Distance to SSRA:	
Latitude (DD.DDDD) Decimal Degrees only:					
Longitude (-DDD.DDDD) Decimal Degrees Only, must include the " - " :					
Total Unit Acres:		(Total acres the material you're burning came from.)		Date 70% Felled (m/y):	
Elevation:			Avg. Slope:%		
Type of burn: (Check Only 1)	<input type="checkbox"/> (B) Broadcast Activity <input type="checkbox"/> (F) Broadcast Natural	<input type="checkbox"/> (G) Grapple Pile <input type="checkbox"/> (H) Hand Pile	<input type="checkbox"/> (U) Underburn Activity <input type="checkbox"/> (N) Underburn Natural	<input type="checkbox"/> (L) Landing Piles Only* <input type="checkbox"/> (T) Tractor Pile	<input type="checkbox"/> (R) R/W <input type="checkbox"/> (S) Range
<i>*If unit has landing piles in addition to another type of burn, DO NOT check Landing Piles Only, check the box that pertains to the majority of your unit, and enter the Landing pile tons in the space below.</i>					
Burn Reason: (Check Only 1)	<input type="checkbox"/> (H) Hazard Reduction <input type="checkbox"/> (B) Hazard & Silviculture	<input type="checkbox"/> (W) Wildlife Habitat <input type="checkbox"/> (S) Silviculture	<input type="checkbox"/> (F) Forest Health <input type="checkbox"/> (R) Other	<input type="checkbox"/> (M) Forest Health Maint. <input type="checkbox"/> (E) Lyd. 2 Reg., Fee Exempt	
Species: Only 1	<input type="checkbox"/> (D) Douglas Fir/Hemlock/Cedar <input type="checkbox"/> (S) Sage/Bitterbrush	<input type="checkbox"/> (H) Hardwood <input type="checkbox"/> (G) Grass	<input type="checkbox"/> (M) Mixed Conifer <input type="checkbox"/> (P) Ponderosa	<input type="checkbox"/> (B) Brush <input type="checkbox"/> (L) Lodgepole	
Landing R/W Ac:	Landing R/W Tons:	Piled Ac:	Piled Tons:	Broad/Under Burn Ac:	Duff Depth:
Fuel Tonnage:		Tons/Acre (0-.25")		Tons/Acre (.26-1")	
Acres:		Tons/Acre (3.1-9")		Tons/Acre (1.1-3")	
		Tons/Acre (9.1-20")		Tons/Ac. (20.1"+)	
Forest Floor Litter Type:					
<input type="checkbox"/> Short Needle Pine	<input type="checkbox"/> Long Needle Pine	<input type="checkbox"/> Other Conifer	<input type="checkbox"/> Deciduous Hardwood	<input type="checkbox"/> Evergreen Hardwood	<input type="checkbox"/> Grass
Litter Depth (i.e. 1.3")			Litter coverage on ground (%)		
Rotten Stumps: (Average Diameter, Height, and Density or amount per acre.)					
5-9" Ø	Diameter:	9-20" Ø	Diameter:	20+ Ø	Diameter:
	Height:		Height:		Height:
	Density:		Density:		Density:
Live Shrub Type & Cover %:	Live Shrub Height:		Live Shrub Tons per Ac:		
Comments: THIS IS NOT A BURNING PERMIT. (All units must be registered a minimum of 7 days before burning, earlier is preferred.)					

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

▷ **Alternative Burn Plan (Registration Part 2)**

Operator: _____ **Phone:** _____

Planned Date of Burn: _____ **Planned Ignition Time:** _____

Acres Planned: _____ **Landing - R/W Tons Planned:** _____ **File Tons Planned:** _____

Broadcast Tons/AC Planned: _____

Special Problems and Mitigation Instructions:

Personnel:

Equipment:

Other:

Mop-up and patrol is required to prevent the spread of fire from the planned unit. Mop-up and patrol will be provided by the landowner or operator until the danger of fire spreading is over. Sufficient contingency force must be provided by the landowner or operator to ensure control of this burn during periods of adverse weather conditions.

Pursuant to ORS 477.066, 067, 068, and 120 the Landowner and Operator identified on this plan shall immediately proceed to control and extinguish any uncontrolled fire escaping the planned burn area and be liable for up to \$300,000 of the Forester's fire suppression costs. In case the Landowner or Operator fails to perform the duty required, or is willful, malicious, or negligent in the fire origin, or subsequent spread, or fails to make every reasonable effort, the actual costs incurred by the Forester, or a Forest Protection Association in controlling and extinguishing the fire shall be paid by the Landowner or Operator.

Signature of Operator: _____ **Date:** _____

Signature of ODF Forester: _____ **Date:** _____

Attach a map of the unit which shows: 1) access routes, 2) unit boundaries, 3) water sources, 4) problem areas, 5) control lines, 6) adjacent fuels, 7) adjacent landowners.

All burns a minimum of \$30. Registration Fee = \$0.50/ac. Landing Burns (total harvest ac.) = \$0.50/ac. Broadcast/~~Underburn~~ (Actual Acreage of Burn Area) = \$2.60/ac. with landings; \$3.10/ac. without landings. Piled burn (Actual Acreage of Burn Area) = \$2.60/ac. with landings; \$3.10/ac without landings.

FOR OFFICE USE ONLY	
Stewardship Forester: _____	Notes: _____
District ID: _____	_____

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

Alternative Accomplishment Section, (Registration Part 3)

Operator Name:	Phone:	
Unit Name:	Registration #:	
Actual Burn Date:	Actual Ignition Time:	
Actual Acres Burned:	Landing-R/W Tons Burned:	
File Tons Burned:	Broadcast Tons/Ac. Burned:	
Total Broadcast Tons Burned:	Total Tons Burned:	
Ignition Duration:	Achieved Rapid Consumption:	Shrub Consumption:
Duff Fuel Moisture:	Fuel Moisture 10Hr%	1000Hr%
Fuel Moisture Code:	<input type="radio"/> NFDR-th (1000hr moisture from NFDRS model) <input type="radio"/> Adj-thi (user adjusted moistures) <input type="radio"/> Weighted (oven weighted samples)	
Days Since Significant Rain:	Wind Speed:	
Additional Comments:		
<hr/>		
<hr/>		
<hr/>		

INSTRUCTIONS FOR REPORTING SYTEM CODING SHEET

Unless otherwise specified, data shown in quotation marks (" ") should be entered without the quotation marks. All entries are mandatory unless indicated otherwise. Entries consist of only numbers or letters. No special characters such as dashes, commas, etc. may be used.

PART ONE: REGISTRATION INFORMATION

1. **Date registered:** Enter the day of registration in MM/DD/YY format.
2. **Registration number:** Twelve digits, the ten (10) digit E-notification number obtained through the Forest Practices program plus a two digit unit extension that can come from either the E-notification system or can be generated locally. Enter data as one, twelve-digit number with no spaces, dashes, or other characters. For natural, "non-activity" units without E-notification numbers, contact the Salem Smoke Management unit. Blocks of 100 "406" numbers will be issued to local offices for conducting these burns. Units should not be re-registered using a different number during the three-year burning window available under the original registration.
3. **District or Forest Identifier:** A three-digit code as shown in the table, "Smoke Management District ID Numbers" later in this Appendix.
4. **Ownership type:**

USFS - U	Federal (BLM) - F
Other Federal – O	State, County, Municipal – S
Private - P	
5. **Sale name:** Up to 20 characters, letters, and numbers only with no punctuation.
- 6-8. **Legal:** Enter location by township, range, and section, but do not include the letters "T", "R", and "S". Partial townships may be entered. "1/4, 1/2, and 3/4" partials should be entered in decimal format as ".25, .5, or .75", respectively after the full township or range. If the unit covers more than one section, enter the predominant section number.
 6. Township
 7. Range
 8. Section

**INSTRUCTIONS FOR
REPORTING SYSTEM CODING SHEET**

PART 1: BASIC UNIT INFORMATION (Cont.)

Examples:

	Field Number		
	<u>10</u>	<u>11</u>	<u>12</u>
T10S-R10W-S33	10S	10W	33
T10 1/2S-R11E-S25	10.5S	11E	25
T9 3/4S-R7 1/2E-S6	9.7S	7.5E	6

9. **Latitude:** Use decimal degrees only. Enter two digits to left of decimal and four digits to the right of the decimal.
10. **Longitude:** Use decimal degrees only. Enter a “-“ sign and three digits to the left of the decimal and four digits to the right of the decimal.
11. **County Number:**

01	Baker	10	Douglas	19	Lake	28	Sherman
02	Benton	11	Gilliam	20	Lane	29	Tillamook
03	Clackamas	12	Grant	21	Lincoln	30	Umatilla
04	Clatsop	13	Harney	22	Linn	31	Union
05	Columbia	14	Hood River	23	Malheur	32	Wallowa
06	Coos	15	Jackson	24	Marion	33	Wasco
07	Crook	16	Jefferson	25	Morrow	34	Washington
08	Curry	17	Josephine	26	Multnomah	35	Wheeler
09	Deschutes	18	Klamath	27	Polk	36	Yamhill

12. **Distance from nearest Smoke Sensitive Receptor Area (SSRA) boundary:** Round to nearest mile. If within SSRA, use 0. If more than 60 miles, enter "60".

INSTRUCTIONS FOR RECORDING SYSTEM CODING SHEET

PART 1: BASIC UNIT INFORMATION (Cont.)

13. **Acres in unit:** Enter the total number of acres in the unit. Acreage for individual treatment types will be broken out in data fields 21 through 26, below.
14. **Date when 70% of the cutting was completed:** Enter the six-digit code “yyyy-mm”, e.g. “2009-12” means that December 2009 was the cutting date. Leave blank for natural fuels or no cutting.
15. **Elevation of burn:** Elevation of burn above sea level in feet. Enter average elevation to the nearest 100 feet.
16. **Slope:** Enter actual average slope. Maximum of three digits, do not enter % symbol.
Example: 30% slope is entered as "30".
17. **Type of burn:** Enter the predominate type of burning. Do not enter “L” for units that are a combination of landings and other burn types.
- | | |
|------------------------|------------------------|
| Broadcast Activity - B | Underburn Activity - U |
| Broadcast Natural - F | Underburn Natural - N |
| Handpile - H | Grapple Pile - G |
| Tractor Pile - T | Landing Only - L |
| Right-of-way – R | Rangeland – S |
18. **Primary reason for burn:**
- | | | |
|--------------------------------|------------------------------------|-------------------|
| Hazard Reduction - H | Silviculture - S | Forest Health - F |
| Wildlife Habitat - W | Hazard and Silviculture - B | Other - R |
| Forest Health, Maintenance – M | Level 2 regulation, Fee Exempt – E | |
19. **Operator Name:** Individual or business conducting the burn (optional entry).
20. **Predominant species of fuel:**
- | | |
|---------------------------------|--------------------|
| Douglas Fir, Hemlock, Cedar - D | Ponderosa Pine - P |
| Lodgepole Pine - L | Mixed Conifer - M |
| Hardwood - H | Brush - B |
| Juniper - J | Grass - G |
| Sagebrush or Bitterbrush – S | |

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 1: BASIC UNIT INFORMATION (Cont.)

21. **Landing or right-of-way pile acres:** Enter the total number of acres from which the material was collected. If less than 1, report as 1. Include all landing acreage for the unit.
22. **Landing and right-of-way pile acres:** Enter the total acres of material contained within all landing (and right-of-way) piles that will be burned. Do not include broadcast woody loading or in-unit piles in this entry (See item 28-33). Leave blank if there are none. Note: Landing/right-of-way and in-unit piles must be registered separately to facilitate fee assessment.
23. **Landing and right-of-way pile tons:** Enter the total acres of material contained within all landing (and right-of-way) piles that will be burned. Do not include broadcast woody loading or in-unit piles in this entry. Leave blank if there are none.
24. **Piled acres:** Enter the number of acres expected to be burned as in unit piles. Leave blank if there are none.
25. **Piled tons:** For piled burns, and piles (other than landing or right-of-way piles) on broadcast and underburn units, enter the pile tonnage expected to be burned in the unit. Leave blank if there are none.
26. **Broadcast acres:** Enter acres of broadcast or underburning expected to be burned. Leave blank if there are none.
27. **Average duff depth:** Report to the nearest tenth of an inch. Do not include the decimal when reporting. Example: 1.6 inches of duff should be reported as "16".
- 28-33. **Woody loading in broadcast and underburns:** Reported as tons per acre by size class. For natural fuels burns, include all fuel types in the appropriate size classes. Round all data to the nearest ton/acre.
 28. 0 - 0.25" loading
 29. 0.26 - 1.00" loading
 30. 1.1 - 3.00" loading
 31. 3.1 - 9.00" loading
 32. 9.1 - 20.00" loading
 33. >20" loading

INSTRUCTIONS FOR REPORTING SYTEM CODING SHEET

34-36. **Forest floor fuel (optional entry):**

34. Litter type: Choose one of the following:

- Short needle pine
- Long needle pine
- Other conifer
- Deciduous hardwood
- Evergreen hardwood
- Grass

35. Litter depth: Record in 10ths of inch.

36. Litter coverage percent: Percentage coverage for entire unit.

37-39. **Rotten fuel tons per acre (optional entry):** Reported as tons per acres by size class.

37. 3 – 9" loading

38. 9 – 20" loading

39. >20" loading

40-42. **Rotten stumps (optional entry):** Report diameter in inches, height in feet (use decimal value for a partial foot), and density number of stumps per acre.

40. Diameter

41. Height

42. Density

43-46. **Live fuels (optional entry):**

43. Shrub type: Choose one of the following.

- Broadleaf
- Evergreen
- Sage

44. Shrub percent coverage: Coverage over entire unit

45. Shrub height: In tenths of feet

46. Tons per acre: shrubs consumed by burning

47. **Comments (optional entry):**

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 2: PLANNED BURN

The following information shall be entered into the computer by the day the unit is planned for burning for all districts and forests in Level 1 regulation, except for right-of-way piles. Planning of right-of-way piles and areas in Level 2 regulation is encouraged but not required.

1. **Unit number:** The twelve (12) digit number that was entered in Part 1 is entered.
2. **District or forest identifier:** As used in Part 1.
3. **Planned date:** Enter the date the unit is planned to be burned using the format mm/dd/yy.
4. **Estimated ignition time:** Use the 24-hour clock and local time. For example, a planned ignition time of 2:00 p.m. is entered as 1400.
5. **Acres planned:** Enter the number of acres that are planned to be burned. For piled units this is the acres from which the material was gathered.
- 6-7. **Expected fuel consumption:**
 6. **Landing pile tons:** For right-of-way and landing pile units, enter the total tons expected to be burned. Leave blank if there are none.
 7. **Unit pile tons:** For piled burns, and piles (other than landing or right-of-way piles) that are planned to be burned on broadcast and underburn units, enter the pile tonnage, in total tons, of woody material expected to be burned. Leave blank if there are none.
8. **Expected fuel consumption in broadcast or underburns:** Enter the number of tons of woody fuel, excluding piles and ground fuel expected to be burned in tons per acre.

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 3: ACCOMPLISHED BURN

The following information shall be entered into the computer the next business day after the burning occurred for all districts and forests in Level 1 regulation.

For right-of-way piles and all burning in areas of Level 2 regulation, accomplished burning shall be entered into the data system by close of the first business day of the week following ignition. Daily reporting of accomplishments in Level 2 areas is encouraged.

For landing and piled units only items 1 through 8 need to be reported.

1. **Unit number:** Use the twelve (12) digit number that was entered in Part 1 and Part 2.
2. **District or forest identifier:** As used in Part 1 and Part 2.
3. **Actual date of burn:** Enter the date the unit was burned using the format mm/dd/yy.
4. **Actual ignition time:** Use the 24-hour clock and local time.
5. **Number of landing/right-of-way acres burned:** This can be more or less than the number planned. Include slop-over acres in the total. Report only those acres treated by fire, not the total unit size if different. In the event more acres were burned than initially registered and this area was not treated as a wildfire, the additional acreage must be registered and accomplished as a separate unit. Fees shall be applied as appropriate.
6. **Landing or right-of-way tons burned:** (may be more or less than that entered in Parts 1 and 2): Enter the total tons of material actually burned in the piles.
7. **Pile acres burned:** Report only those acres treated by fire, not the total unit size if different. This can be more or less than the number planned. Include slop-over acres in the total. In the event more acres were burned than initially registered and this additional area was not treated as a wildfire, the extra acreage must be registered and accomplished as a separate unit. Fees shall be applied as appropriate.
8. **Pile tons burned:** Enter the pile tonnage, in total tons, of material burned. Do not include landing or right-of-way tonnage in this field.

**INSTRUCTIONS FOR
REPORTING SYSTEM CODING SHEET**

PART 3: ACCOMPLISHED BURN (Cont.)

9. **Fuel consumed in broadcast and underburn portion of units:** Enter the amount of woody fuel and ground fuel burned as tons per acre. This number can be more or less than the entries made in Part 1 and Part 2.
10. **Was rapid ignition achieved?**

Enter "Y" or "N", use subjective judgment to answer.
11. **Shrub consumption (optional entry):** Percentage of shrubs consumed in unit.
12. **Duff fuel moisture:** Enter either dry (30%), normal (70%), or moist (120%).
13. **10-hour fuel moisture:** Enter the percentage, rounded to whole numbers. Example: 15.4% fuel moisture should be entered as "15".
14. **1000-hour fuel moisture:** Enter the percentage without the "%". Example: 24% fuel moisture should be entered as "24".
15. **1000-hr fuel moisture code:** Method used to determine. Enter one of the selections below for the method used to determine 1000-hr moisture.
Method
NFDR-th
Adj-th
Weighed
16. **Number of days since significant rain:** West of the Cascades: Enter the number of days since 0.5 inches of rain have fallen within a 48-hour period.

East of the Cascades: Enter the number of days since 0.25 inches of rain have fallen within a 48-hour period.
17. **Wind speed:** In miles per hour

SMOKE MANAGEMENT DISTRICT ID NUMBERS

District/Forest	Unit	ID	District/Forest	Unit	ID	District/Forest	Unit	ID
Astoria		521	National Park Svc		09x	Walker Range		991
Central Oregon		95x		Crater Lake	090	Wallowa-Whitman N.F.		16x
	Fossil	953		Oregon Caves	091			
	John Day	952	North Cascade		58x		Eagle Cap	165
	Monument	956		Molalla	581		Hell Canyon NRA	164
	Prineville	951		Santiam (Linn)	583		La Grande	166
	Sisters	955		Santiam (Marion)	582			
	The Dalles	954	Northeast Oregon		97x			
Columbia Gorge Scenic Area		220		Baker	972		Wallowa Valley	162
Coos District		740		La Grande	971		Whitman	163
Coos FPA		72x		Pendleton	973	West Oregon		55x
	Bridge	722		Wallowa	974		Dallas	552
	Coos Bay	721	Ochoco N.F.		07x		Philomath	551
	Gold Beach	723		Crooked River National Grassland	075		Toledo	553
Deschutes N.F.		01x		Lookout Mountain	071	Western Lane		781
	Bend/Fort Rock	011		Paulina	072	Willamette N.F.		18x
	Crescent	012	Rogue-Siskiyou N.F.		10x		Detroit	184
	Sisters	015		Gold Beach	103		McKenzie River	187
Douglas FPA		73x		Wild Rivers	102		Middle Fork	185
	Central Douglas	733		Siskiyou Mountains	101		Sweet Home	183
	North Douglas	731		High Cascade	106	Winema N.F.		20x
	South Douglas	732		Powers	105		Chemult	201
Forest Grove		53x	Siuslaw N.F.		12x		Chiloquin	202
	Columbia City	532		Central Coast	128		Klamath	203
	Forest Grove	531		Hebo	121			
Fremont N.F.		02x		Oregon Dunes	124			
	Bly	021	South Cascade		77x			
	Lakeview	022		Eastern Lane	771			
	Paisley	023		Sweet Home	772			
	Silver Lake	024	Southwest Oregon		71x			
Klamath N.F.	Oak Knoll	301		Central Point	711			
Klamath-Lake		98x		Grants Pass	712			
	Klamath Falls	981	Tillamook		511			
	Lakeview	982	Umatilla N.F.		14x			
Malheur N.F.		04x		Heppner	142			
	Blue Mountain	041		North Fork John Day	145			
	Emigrant Creek	042		Walla Walla	146			
	Prairie City	044	Umpqua N.F.		15x			
Mt Hood N.F.		06x		Cottage Grove	151			
	Barlow	061		Diamond Lake	153			
	Clackamas	065		North Umpqua	156			
	Hood River	066		Tiller	152			
	Zig Zag	069						

REPORTING SMOKE INTRUSIONS AND SMOKE INCIDENTS

- A. Smoke intrusion and the smoke incident log provide a descriptive record of smoke impacts into SSRAs or other sensitive areas. Intrusion reports shall be made for prescribed burning smoke that enters SSRAs at levels defined as an intrusion. Smoke entering SSRAs at levels below the intrusion threshold or other areas sensitive to smoke shall be identified and reported as smoke incidents. The reports are used to evaluate the causes of impacts and to identify potential areas of improvement in forecasts, instructions, and operational procedures that will minimize future smoke impacts. The incident log may be useful in an evaluation if the area is recommended for inclusion on the list of SSRAs. Reports shall be summarized in annual analyses of Smoke Management data compiled by the Smoke Management section.
- B. Field units (i.e., state districts and associations, resource areas, and national forests) are responsible for monitoring smoke from burning activity and reporting smoke impacts to the Smoke Management Meteorologist. The Meteorologist will determine whether the smoke impact is a smoke incident or a smoke intrusion. If the smoke impact is a smoke incident it will be logged on a smoke incident log detailing the date, time, duration, magnitude, area affected, responsible agency, and any pertinent comments. If the smoke impact is validated as a smoke intrusion the Meteorologist will use Form 1-4-1-301 to detail the impact.
- C. The Salem Smoke Management unit completes sections A through E of the report. The report will be forwarded to the field to complete section F. The field unit will return the completed report back to the Smoke Management unit for dissemination to affected field offices, ODF leadership, DEQ, and the Smoke Management Advisory Committee. In the event that a smoke intrusion involves burns conducted in more than one field unit, the Smoke Management unit will combine the individual field reports into a single summary report. Additionally, the Smoke Management unit shall:
1. Prepare and transmit to applicable field offices preliminary reports of smoke intrusions as soon as they become aware of smoke entering at particulate matter levels above the one-hour or 24-hour thresholds.
 2. Coordinate with other offices and agencies to develop descriptive reports of smoke intrusions.
 3. Prepare an annual summary of smoke intrusions and smoke incidents. This summary is included in reports of annual Smoke Management activities required by OAR 629-048-0450 and presented to the Smoke Management Advisory Committee as needed.

REPORTING SMOKE INTRUSIONS AND SMOKE INCIDENTS

5. If a smoke intrusion is determined to exceed the National Ambient Air Quality Standards (NAAQS), the Smoke Management Meteorologist will immediately notify DEQ of the impact if DEQ has not already contacted ODF about the intrusion. All other aspects of the intrusion will continue to be processed similar to a smoke intrusion described above. When the intrusion report is complete and disseminated, ODF, DEQ and members of the organization(s) responsible for the burn(s) will meet either by phone or in person to discuss why the exceedance occurred and how it can be prevented in the future. Details of any outcomes to prevent future NAAQS exceedances will be highlighted in the Smoke Management Annual Report.

Procedures:

1. Burn bosses, field administrators, or other forestry personnel shall report suspected smoke impacts into SSRAs, Class I Areas, or areas sensitive to smoke by telephone to the Smoke Management forecaster as soon as possible. If seven-day operations are not in progress at Salem, then telephone by noon on the first workday after the impact.

Personnel observing smoke entering an SSRA from burn units outside of their administrative area should also submit telephone and written reports as outlined above. In addition, they should notify the field office that has administrative responsibility for the problem unit(s) of the fact that smoke is entering or about to enter a SSRA.
2. An evaluation of the impact shall be made by field personnel, time and workload permitting, to determine the extent, magnitude, and duration of the smoke impact.

SMOKE INTRUSION REPORT
Form 1-4-1-301

Intrusion #: [] Intrusion Date(s): [] Location(s): []

SECTIONS A-E TO BE COMPLETED BY SALEM FORECASTER:

A. SMOKE ORIGIN:

12-digit unit Number(s)	Fire Zone	District Forest	Location (TRS)	Owner Class	Elev	Acres	Tons	Burn Date	Start Time	End Time
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

B. INTRUSION SUMMARY:

1. Area Affected: [] SSRA (Yes No)

2. Intrusion Date: [] Start Time: [] End Time: [] Duration: [] hours

3. Highest Pm2.5: [] or lowest prevailing visibility (during intrusion): []

C. ODF SMOKE FORECAST:

	Mixing Height	Surface Wind	Transport Wind
At Start of Ignition	[]	[]	[]
At End of Ignition	[]	[]	[]
Next 12 hours	[]	[]	[]

D. ODF SMOKE INSTRUCTIONS:

- Written instructions (if applicable): []
- Verbal instructions (if applicable): []

E. SMOKE MANAGEMENT WEATHER OFFICE REPORT:

- Describe general weather conditions (including observed mixing heights and transport winds): []
- Comments: []

SECTION F TO BE COMPLETED BY FIELD PERSONNEL:

F. FIELD REPORT:

- Describe general weather conditions observed during the burn period and for the next 6 hours (sky conditions, wind speed and direction, height of smoke plume, direction of smoke travel, etc. []
- Comments (Note other sources of smoke that may have contributed to the intrusion): []
- Public complaints: []

[] / [] District/Forest Representative/Date [] / [] Smoke Management Forecaster/Date

SMOKE MAGNITUDE DETERMINATION FROM VISIBILITY OBSERVATIONS

INTRODUCTION: When no particulate monitor data is available to determine the magnitude of a smoke impact, visibility data may be used to estimate the level of impact when such data is available from a reliable source. The observation procedure outlined below may be utilized by field units to gauge impacts in areas where no monitoring data is available. Prevailing visibility is used as a surrogate for particulate data. Use the procedure outlined below to determine prevailing visibility and the visibility table in Appendix 2, page 6 to make an estimate of the magnitude of a smoke impact.

OBSERVATION PROCEDURE:

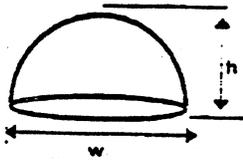
1. Determination of sector visibility: When the visibility is not uniform in all directions, divide the horizon circle into sectors which have approximately the same visibility. Using available landmarks, aided by a detailed local area map, determine the greatest distances that can be seen in each segment of the horizon circle. Base this estimate on the appearance of the landmark. If the markers are visible with sharp outlines and little blurring of color, the visibility is much greater than the distance to the markers. If a marker can barely be seen and identified, the visibility is about the same as the distance to that marker. When the visibility is greater than the distance of the farthest markers, estimate the greatest distance you can see in that direction. Note the portions of the circle with similar visibility characteristics.
2. Determination of prevailing visibility: After sector visibilities have been determined, resolve them into a single value for reporting purposes. To do this, use either the greatest distance that can be seen throughout at least half the horizon circle, or if the visibility is varying rapidly during the time of the observation, use the average of all observed values. Prevailing visibility should be reported in miles.

EXAMPLES – Determining Prevailing Visibility (Prevailing Visibility indicated by asterisks)											
<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>5</td> <td>90</td> </tr> <tr> <td><u>2½ *</u></td> <td><u>90</u></td> </tr> <tr> <td>2¼</td> <td>90</td> </tr> <tr> <td>2</td> <td>90</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	5	90	<u>2½ *</u>	<u>90</u>	2¼	90	2	90	
Visibility (Miles)	Approximate Degrees										
5	90										
<u>2½ *</u>	<u>90</u>										
2¼	90										
2	90										
<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>10</td> <td>40</td> </tr> <tr> <td><u>8*</u></td> <td><u>150</u></td> </tr> <tr> <td>6</td> <td>70</td> </tr> <tr> <td>5</td> <td>100</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	10	40	<u>8*</u>	<u>150</u>	6	70	5	100	
Visibility (Miles)	Approximate Degrees										
10	40										
<u>8*</u>	<u>150</u>										
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5	100										
<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>8</td> <td>100</td> </tr> <tr> <td>6</td> <td>50</td> </tr> <tr> <td><u>5*</u></td> <td><u>130</u></td> </tr> <tr> <td>4</td> <td>80</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	8	100	6	50	<u>5*</u>	<u>130</u>	4	80	
Visibility (Miles)	Approximate Degrees										
8	100										
6	50										
<u>5*</u>	<u>130</u>										
4	80										

OREGON SMOKE MANAGEMENT SMOKE COMPLAINT REPORT		
Complaint From:	Name:	Organization:
	Address:	Phone:
Received by:	Name:	Office:
	Date:	Time:
Complaint Source:	<input type="checkbox"/> Phone:	<input type="checkbox"/> Mail
	<input type="checkbox"/> In Person	<input type="checkbox"/> Email:
	<input type="checkbox"/> Other:	
Investigated By:	Name:	Office:
	Date:	Time:
Location of Smoke Impact:		
Location of Smoke Source:	T R sec	Unit Number(s):
Description of Complaint:		
<input type="checkbox"/>	Inform the complainant that they have ability to receive follow-up.	
Investigation Results:	<input type="checkbox"/> Burn Permit Issued	Landowner
	Reported Tons/Acres	Actual Tons/Acres
	<input type="checkbox"/> In data system	Citation issued
	<input type="checkbox"/> Instruction Compliance	<input type="checkbox"/> Referred to other Agency
	<input type="checkbox"/> Other	
Remarks:		
Distribution:	<input type="checkbox"/> Smoke Management	USFS: R6 <input type="checkbox"/> District <input type="checkbox"/>
	<input type="checkbox"/> District	BLM: State Office <input type="checkbox"/> District <input type="checkbox"/>
	<input type="checkbox"/> Area	Tribe/Other Agency <input type="checkbox"/>
Complaint No.	Signature	Date

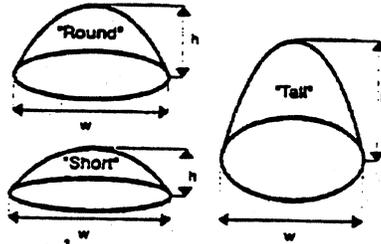
SHAPE CODE CHARTS

1. Half-section of Sphere



Half of a ball, where the width is approximately twice the height, and the sides are evenly rounded.

2. Parabaloids

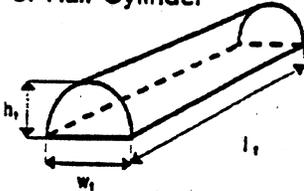


Pile height is same as radius (half diameter), but surface tapers in a parabola towards the top.

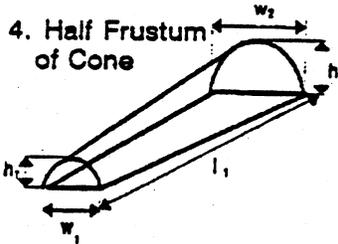
Sides taper in a parabola towards the top, where the height is greater than the radius (half the width).

Pile height is less than half the radius, and the sides drop down to the base in a parabola.

3. Half Cylinder



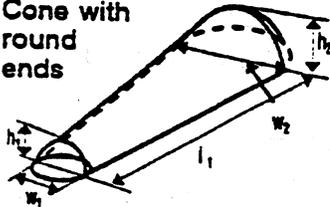
Logs and debris are generally aligned in parallel. Pile shape is rounded side-to-side, with both ends of the pile approximately the same height.



4. Half Frustum of Cone

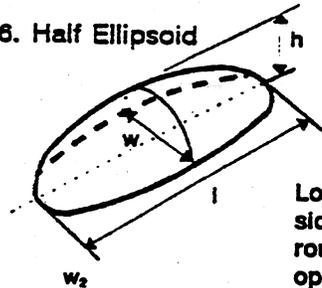
Logs and debris are generally aligned in parallel. Pile shape is rounded side-to-side, but heights of opposing ends are not equal (pile tapers).

5. Half Frustum of Cone with round ends



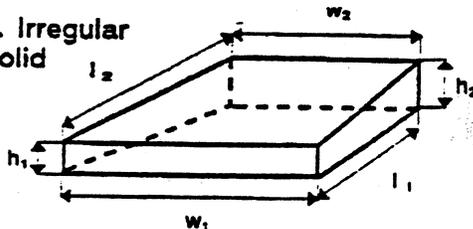
Pile shape is generally the same as #4, but the ends are rounded, and appearance is similar to half a pear.

6. Half Ellipsoid



Long, tapering pile, rounded side-to-side, with well-rounded ends. Widths of opposing ends are not equal.

7. Irregular Solid



Irregularly-shaped pile with straight but uneven sides. Dimensions for opposing sides are not necessarily equal.

AERIAL MONITORING

The form below (available on the department Smoke Management website) may be used to record observations during aerial monitoring flights. Completed forms should be forwarded to the forecaster after the flight has been completed.

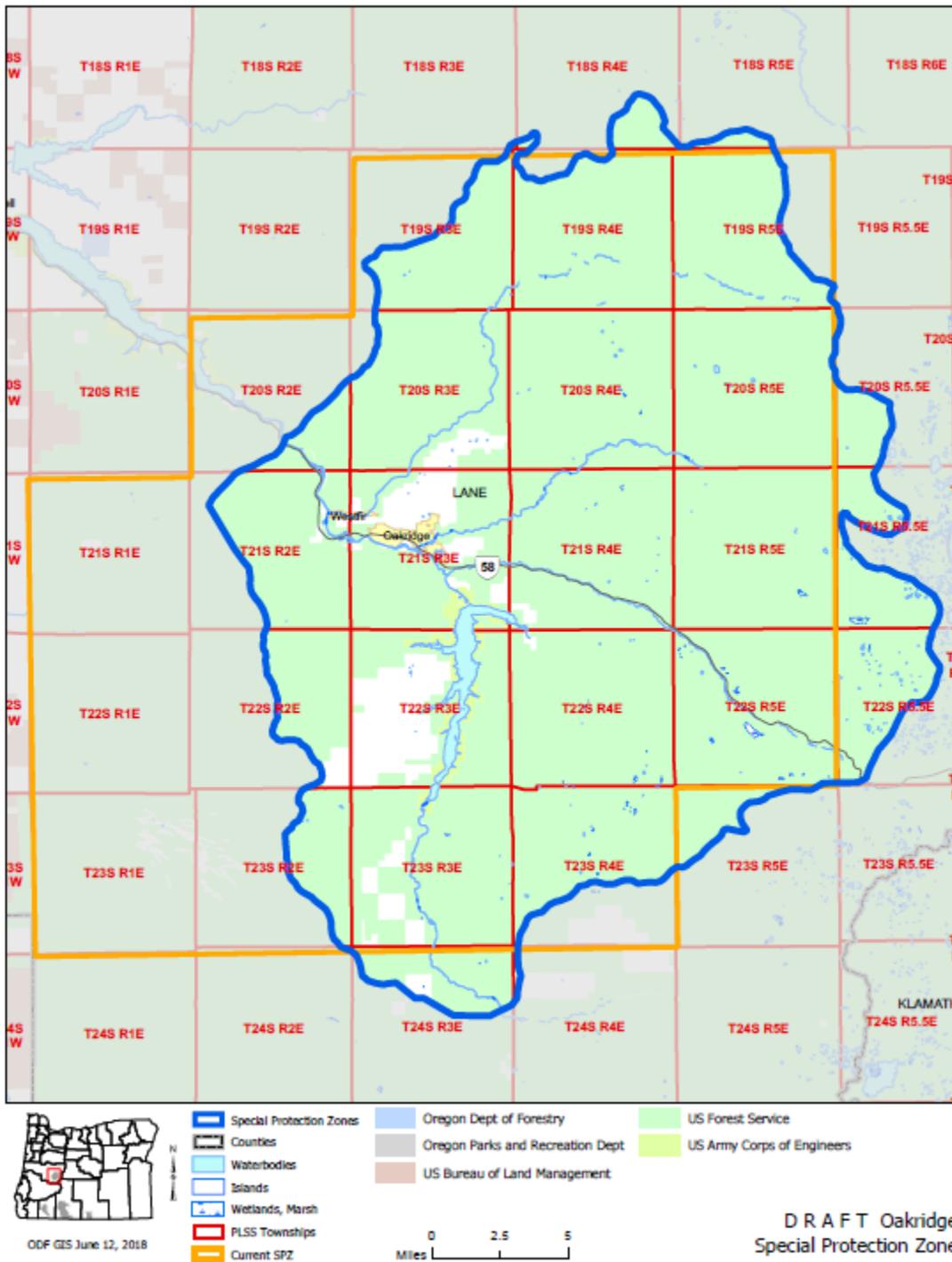
Aerial monitoring should be conducted during periods of considerable burning and when burning in less than excellent atmospheric dispersion conditions. Monitoring should be scheduled far enough into the burns to determine the extent and direction of smoke drift.

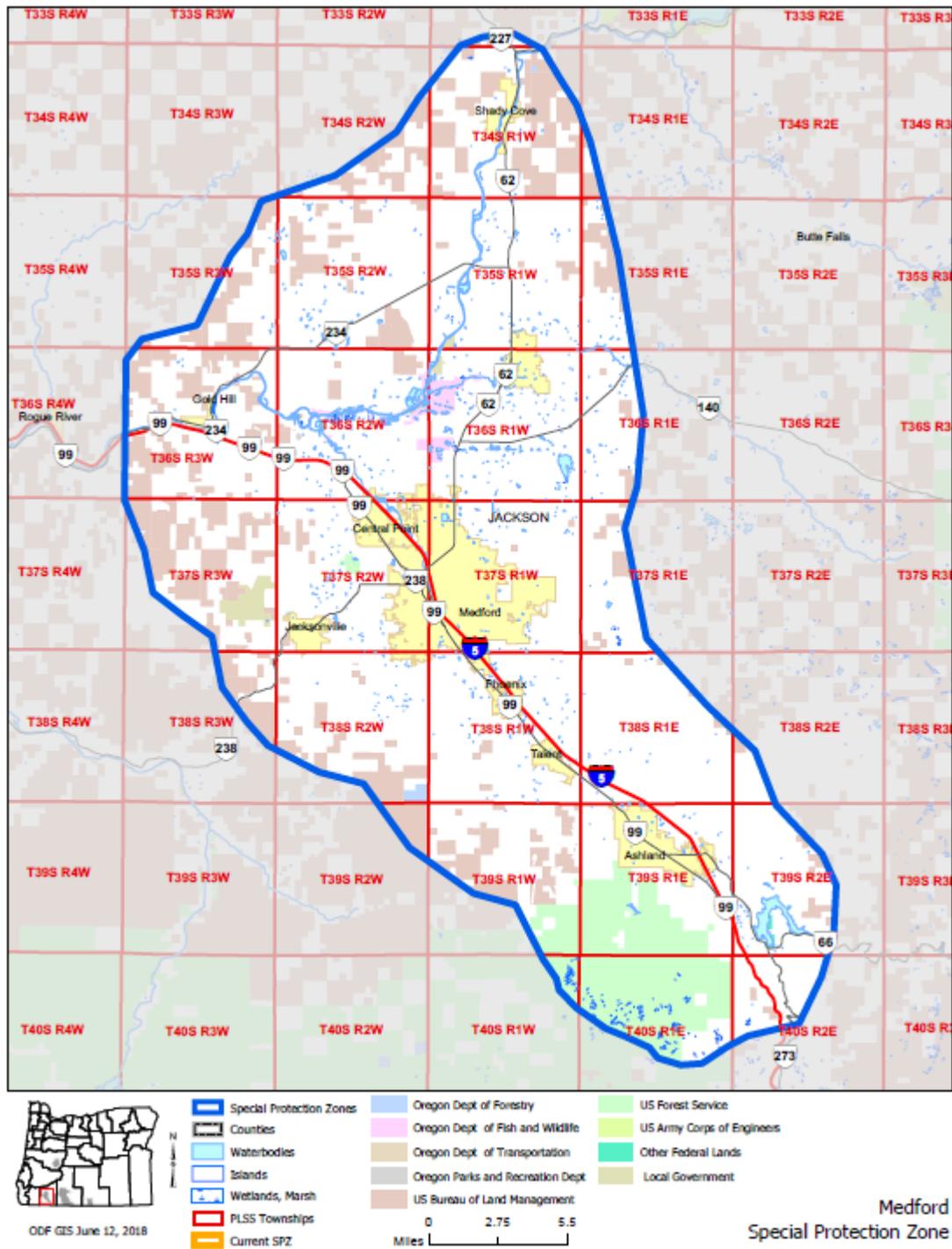
Instructions for entries are found on the second page of the form. Flying parallel to the smoke plume is recommended to ensure accurate determination of the direction of movement of the smoke. The plume type diagrams provide a quick reference for generalized descriptions. If they do not adequately describe the character of the observed smoke, specific descriptions of observed plumes should be made.

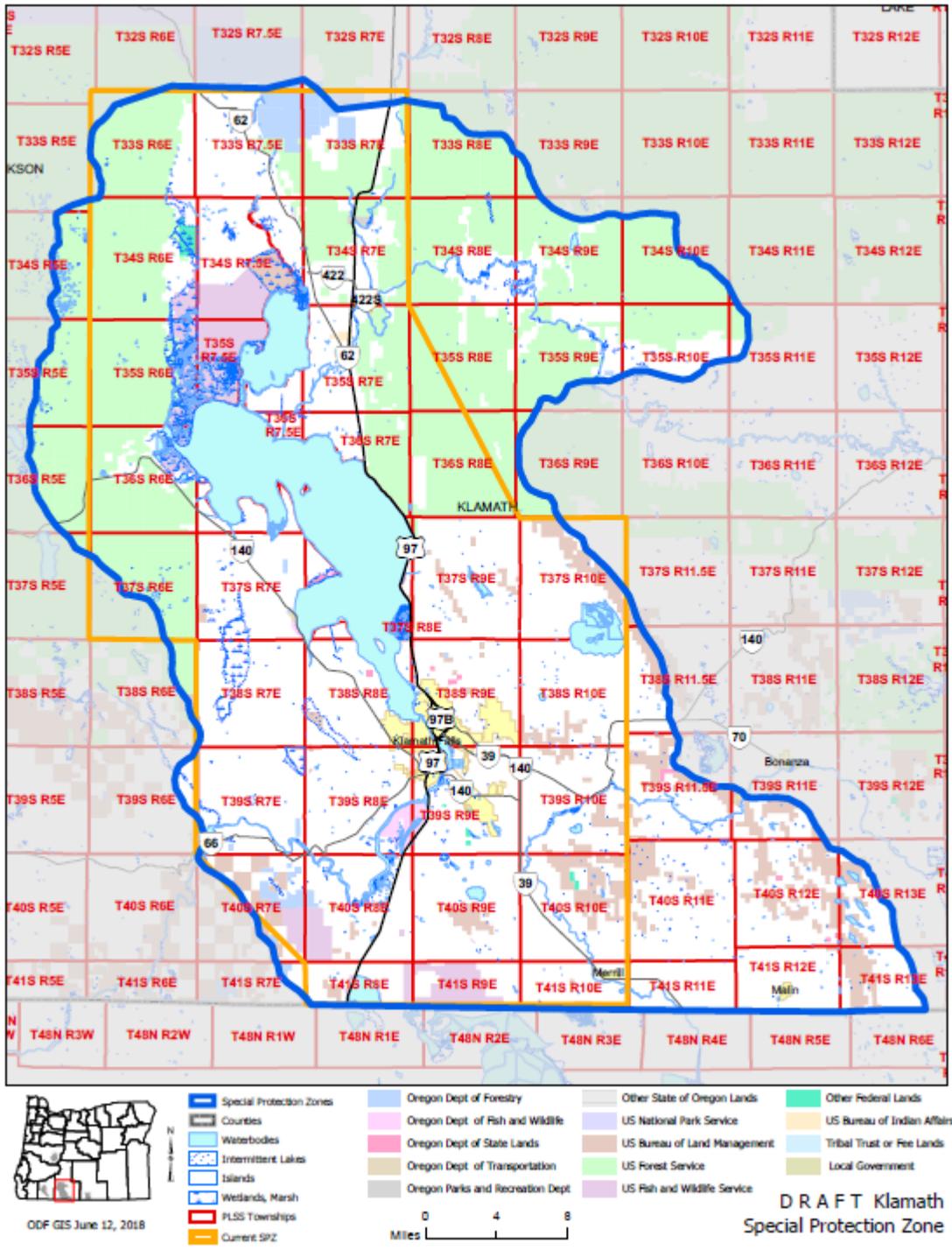
The chart on the second page of the form may be used during takeoff and/or landing to record a temperature profile using the aircraft outside air temperature sensor. These profiles are an aid to help determine atmospheric stability and mixing height.

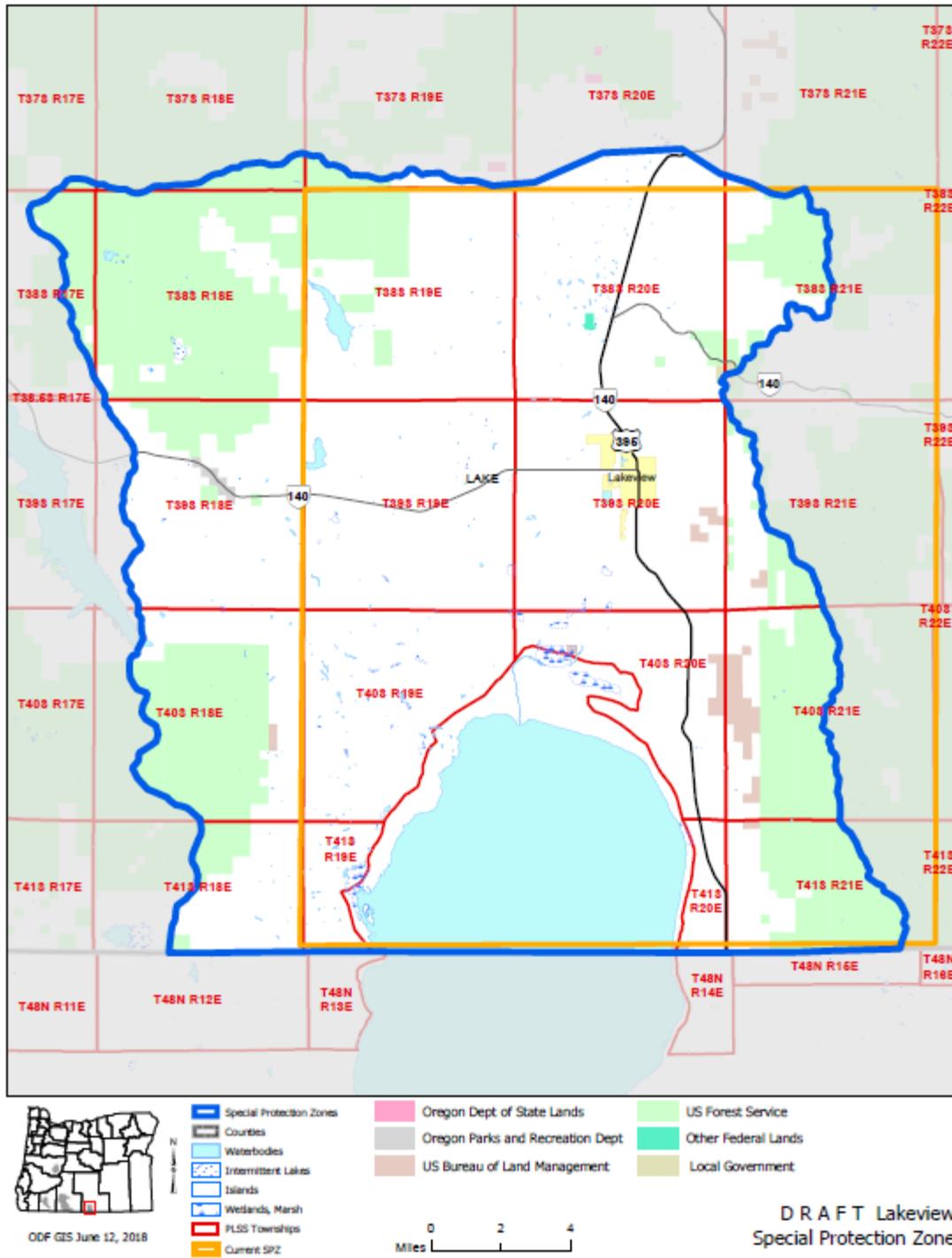
SPECIAL PROTECTION ZONE MAPS

Special Protection Zone (SPZ) boundaries are shown in maps in this appendix. SPZ rules are found in OAR 629-048-0135 and 0137.









OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

POLICY: This directive provides operational procedures to implement the Oregon Smoke Management Plan. The objectives of the Smoke Management Plan are to:

- A. Minimize smoke emissions resulting from prescribed burning as described by ORS 477.552.
- B. Provide maximum opportunity for essential forestland burning;
- C. Protect public health by avoiding intrusions;
- D. Coordinate with other state smoke management programs;
- E. Comply with state and federal air quality and visibility requirements; and
- F. Promote the further development of techniques to minimize emissions by encouraging cost-effective utilization of forestland biomass, alternatives to burning, and emission reduction techniques.

AUTHORITY: This directive implements ORS 477.013, 477.515, ORS 477.552 through 562, OAR 629-043-0040, and OAR 629-048-0001 through 629-048-0500.

DEFINITIONS: See OAR 629-048-0005.

STANDARDS:

- A. The Smoke Management Rules: The Smoke Management administrative rules (OAR 629-048-0001 through 629-048-0500) provide a specific framework for the administration of the Smoke Management program by the State Forester. The plan requires the State Forester and each field administrator to maintain a satisfactory atmospheric environment in SSRAs, federal Class I Areas, and other areas sensitive to smoke (OAR 629-048-0230(8)).

In administering the Smoke Management Plan, the State Forester and the field administrators will monitor weather and air quality conditions in SSRAs and other areas sensitive to smoke.

In order to meet air quality standards and the objectives stated above, restrictions on prescribed forestland burning are applied through issuance of Smoke Management instructions by the State Forester in order to limit the amount of particulate matter that is released into the airshed.

- B. Plan Applicability: The Smoke Management Plan applies to all lands classified as forestland under ORS 526.305 to 526.370 and all federally managed forestland, whether or not classified, within a forest protection district. See OAR 629-048-0100 for specifics. In general, all federal forestland and Class 1 forestland in Western Oregon is regulated at a

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

higher level but all forestland owners and managers must comply with various aspects of the program.

C. Smoke Management Forecasts and Instructions: To minimize the amount of smoke entering SSRAs, as described in OAR 629-048-0140, and other areas sensitive to smoke (OAR 629-048-0005(22)). The Smoke Management forecast unit issues daily forecasts and instructions during periods of substantial prescribed burning.

1. Smoke Management forecasts shall be issued as needed for three regions within the regulated area; Western Oregon, including Fire Weather Zones 601 through 612, Zones 615 through 623, and 639; Central and Northeast Oregon, including Fire Weather Zones 640 through 646; and South-Central Oregon, including Fire Weather Zones 624 and 625.

Written Smoke Management forecasts are normally issued during the period from late March through June and late September through December, when significant prescribed burning is being conducted. Forecasts are written at other times as dictated by weather and the level of burning. Special written forecasts shall be issued when requested for specific burns, as forecaster workload permits.

Scheduled forecasts shall be issued in mid afternoon and are valid for the next day. Forecasts shall be disseminated no later than 3:15 p.m. When necessary, an updated forecast shall be issued if significant changes from the previous forecast have occurred or are expected. When possible, updated forecasts will be issued in the early morning, normally before 8:00 a.m. However, updates may be issued at other times when necessary.

- a. Dissemination. Forecasts shall be disseminated by e-mail and made available on the Oregon Department of Forestry web site (<http://www.oregon.gov/ODF/Fire/Pages/Burn.aspx>). The Western Oregon forecast shall also be placed on a telephone message recording.
 - b. Content. Forecasts include four main sections: a general discussion of the weather expected through the forecast period; specific mixing, transport wind, and surface wind forecasts; a general outlook for the following three days; and daily outlooks for mixing height, transport wind, and surface wind. Updated forecasts may not include outlooks.
2. Instructions and/or advisories shall be issued in conjunction with each Smoke Management forecast. For forestland included in Level 1 regulation, as defined in OAR 629-048-0005(19), instructions detail the locations and amounts of material that may be burned, provide minimum separation from SSRAs, and other restrictions as may be necessary to minimize smoke impacts. In areas of

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

Level 2 regulation, the information may be considered an advisory but adherence is strongly encouraged and burn bosses should use the forecasts and instructions to minimize the possibility of drifting smoke into SSRAs.

- a. When significant burning is taking place, the Smoke Management forecast unit shall issue written instructions with the forecasts. Outside the period when written forecasts and instructions are issued, burning shall be carried out only after consultation with the forecaster.
 - b. Special Protection Zones (SPZ) have been established around certain communities requiring additional protection from particulates. Any burning in an SPZ, during its protection period, must have the approval of the meteorologist. Specific control strategy restrictions for these areas adopted by the Department of Environmental Quality (DEQ) and Oregon Department of Forestry (ODF) are found in OAR 629-048-0135 and OAR 629-048-0137. SPZ maps are found in Appendix 5.
 - c. Air Stagnation Advisories (ASA) are issued by National Weather Service forecast offices for areas where atmospheric conditions are likely to allow air pollutants to accumulate for an extended period. Burning within the area of an ASA must be closely controlled and Smoke Management instructions issued when an ASA is in effect will limit forestland burning to units which are not expected to worsen air quality within the area. Similar restrictions shall apply for areas for which an air pollution alert has been issued by DEQ.
 - d. The instructions shall be considered a directive from the State Forester for all burning in areas of Level 1 regulation. Any planned variances from the daily burning instructions must be discussed with the Smoke Management duty forecaster. OAR 629-048-0230(6) requires that variances from the instructions must be documented by the burn boss. In addition, variances or revisions to the instructions will be logged by the Smoke Management forecaster as workload permits.
 - e. For forestland included in Level 2 regulation, (OAR 629-048-0005(20)), compliance with the Smoke Management instructions is encouraged. Instructions will identify the amount of material that may be burned, those locations where burns should not be conducted, and other special considerations necessary to minimize the amount of smoke from being carried into SSRAs.
- D. Burning Operations: All burning must be conducted in compliance with the Smoke Management Plan. The burn procedures of OAR 629-048-0230 set the minimum requirements that must be met for conducting each prescribed burn.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

1. In areas of Level 1 regulation, units must be registered for burning seven days prior to burning (OAR 629-048-0300), planned in the data system the day of the proposed burn (OAR 629-048-0230(4)), and accomplishments reported the first business day following the actual burn (OAR 629-048-0320) and each additional day that burning is conducted in the unit.
 2. For forestland subject to Level 2 regulation, burning is not required to be planned prior to burning. However, all burns must be registered prior to burning and accomplishment reported by the first business day of the week following ignition. Specific requirements for reporting are detailed in Appendix 1.
 3. In addition to adhering to the restrictions of the Smoke Management forecasts and instructions, burn bosses must monitor on-site conditions and be prepared to terminate ignition or take other appropriate action if conditions warrant. Burns conducted in areas of Level 2 regulation are not required to adhere to the instructions/advisories but are strongly encouraged to follow the guidance and burn in such a manner to minimize smoke impacting SSRAs or other smoke sensitive areas.
 4. The Smoke Management forecaster should be consulted before burning under marginal dispersal conditions and for large or multi-day burns. If notified at least two days in advance of extended period burns and burns greater than 2000 tons, the Smoke Management forecaster will, workload permitting, prepare a forecast specific to the unit being burned.
- E. Monitoring: When necessary, the State Forester shall monitor prescribed burning operations by aircraft and/or other means to ensure compliance with the Smoke Management Plan and to determine the effectiveness of Smoke Management procedures. During marginal conditions or when burning is being conducted near SSRAs or other smoke sensitive areas, monitoring of smoke behavior should be intensified as needed by using lookouts, aerial observations, and on-site observations of smoke behavior. A recommended aerial monitoring form is provided in Appendix 4. For some areas, near real-time data from DEQ air quality monitors and cameras are available via the internet. This information is used in the preparation and validation of daily Smoke Management instructions and in the evaluation of smoke impacts.
- F. Audits: To evaluate compliance with the Smoke Management Plan, the State Forester shall conduct a review of approximately one percent of the units burned each year in areas under Level 1 regulation. Approximately one-half of the audits will be conducted on the day of the burn and approximately one-half will be pre-burn audits. All units to be audited shall be randomly selected. Each burn day audit shall include a site visit during burning, visual tracking and documentation of smoke behavior and movement, and a determination of compliance with: (a) the conditions of the burning permit, (b) the

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

provisions of the Smoke Management administrative rules and directives, and (c) the applicable Smoke Management burning instructions. Each pre-burn audit shall include a site visit before burning. An independent fuel inventory shall be conducted to validate accuracy of tonnage estimates.

Following completion of the audits, a written report of all findings must be prepared and forwarded to the Smoke Management unit. Results of these audits shall be summarized and included in the reports of annual Smoke Management activities.

- G. Reporting and Analysis: Data for all prescribed forestland burning throughout the state must be entered into the Smoke Management data system.

The Smoke Management data system is maintained to provide for analysis of the program, manage the collection of burn fees, and provide for calculation of prescribed burning emissions. Data for registered, planned, and accomplished burn units shall be reported in accordance with Appendix 1.

1. Alternative practices to reduce burning are contained in OAR 629-048-0200. Field administrators and federal land managers are encouraged to report application of these practices with an estimate of the reduction of material burned to the Smoke Management unit.
2. Use of best burn practices to reduce emissions (OAR 629-048-0210) is encouraged to minimize emissions. Additional information on emission reduction techniques and alternative practices may be accessed through the ODF web pages on the Internet. Informing the Smoke Management unit of specific actions taken to reduce emissions is encouraged.

- H. Smoke Impacts: There are two types of smoke impacts: verified smoke intrusions of smoke into SSRAs and verified smoke incidents where significant smoke enters an SSRA at levels below a smoke intrusion (OAR 629-048-0005(27), a Class I Area or other sensitive/populated areas. For two Class I Areas, extra effort (use of test fires or balloon releases to check wind direction or coordinating with the duty forecaster) is needed to keep smoke from the main plume of a prescribed burn from impacting the Kalmiopsis Wilderness and Crater Lake National Park during October and November. If a complaint is received, or district personnel become aware of a smoke intrusion or smoke incident, the District Forester shall assign a qualified individual to conduct an investigation and document the findings.

1. Smoke Intrusions (OAR 629-048-0110): An intrusion occurs when verified smoke from prescribed burning enters an SSRA at levels defined in OAR 629-048-0005 (27). For every smoke intrusion, the source of the impact, the duration, and the magnitude of the intrusion will be determined, if possible. Magnitude shall be determined using particulate matter readings when available, or estimated from

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

the reduction of visibility in the smoke intrusion or smoke incident area.

When particulate matter readings are available, smoke incidents or smoke intrusions will be characterized based on particulate matter values averaged over a one-hour period, or a 24-hour period from midnight to midnight beginning on the first day of smoke entrance.

- a. Visibility: If no particulate matter data is available, or if smoke impacting a community is not observed by a particulate monitor, the short-term (hourly) impact may be estimated from reduction of the prevailing visibility. Distinguishing between a smoke intrusion or a smoke incident based on visibility estimates shall be characterized as follows:

SMOKE INTRUSION/INCIDENT CLASSIFICATION BASED ON VISIBILITY REDUCTION (RV)

(For instructions on estimation of visibility see Appendix 2)

Baseline Visibility (Miles)*	INTRUSION VS INCIDENT	
	INCIDENT	INTRUSION
>50	RV ≥ 4.6	RV < 4.6
25 - 50	RV ≥ 4.4	RV < 4.4
20 - 24	RV ≥ 4.1	RV < 4.1
15 - 19	RV ≥ 3.8	RV < 3.8
10 - 14	RV ≥ 3.5	RV < 3.5
5 - 9	RV ≥ 2.5	RV < 2.5
3 - 4	RV ≥ 1.8	RV < 1.8
1 - 2	RV ≥ 0.5	RV < 0.5
< 1	-	RV = 0

*Baseline visibility is based on optimal visibility with little, if any, discernable visibility restriction. Visibility changes due to naturally occurring phenomena must be factored into the classification as needed (e.g., the change from daylight to dark, blowing dust or sand, rain, fog, etc.)

2. Smoke Intrusion Reporting:

- a. Preliminary reports shall be issued by the Smoke Management forecasters when they become aware that smoke has entered, an SSRA reaching intrusion criteria (OAR 629-048-0005(27)). Field administrators must inform the forecaster as soon as they become aware of impacts. Preliminary reports shall be transmitted via email to interested parties as

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

soon as practical.

- b. Final smoke intrusion reports shall be prepared for all smoke intrusions. The report consists of two sections. The first section is completed by the Smoke Management forecaster within two working days and submitted to the burn boss or district forester for completion. The report is then returned to Smoke Management and distributed to interested agencies. A report format is provided in Appendix 2.
 - c. Smoke intrusions that meet or exceed the 24-hour average PM_{2.5} value of 35 micrograms per cubic meter (National Ambient Air Quality Standard) exceedance will be reported to Smoke Management and the Department of Environmental Quality (DEQ) as soon as possible, but no later than 1 business day after the burn is completed. Reporting will be similar to smoke intrusions but will include management actions (see Appendix 2) to prevent this type of intrusion from occurring in the future. ODF and DEQ will coordinate and agree to what preventative actions will be taken.
3. Smoke incidents: The entry of smoke into Class I Areas, smoke sensitive areas, populated areas that are not designated as SSRAs, or enter SSRAs below the levels of an intrusion shall be evaluated and logged internally, describing the date, time, duration, location, magnitude (if available), area affected, responsible agency, and any noteworthy comments. A smoke incident log is provided in Appendix 2.
- I. Complaints: Complaints shall be investigated, appropriately treated, recorded, and the complainant informed of the investigation results in a timely (consistent with other workload), courteous, and professional manner. Data gathered through complaint investigation shall be reported periodically in accordance with OAR 629-048-0450.

A complaint is any report of smoke alleged to be from forestry activity that may adversely impact public health or protected visibility. Any grievance, tip, information, or inquiry which (1) calls into question forest prescribed burning practices such that an on-site investigation is deemed necessary, or (2) appears likely to be a recurring problem such that documentation seems necessary should be treated as a complaint.

1. Receiving Complaints: Districts and Salem Smoke Management staff shall:
 - a. Respond to the complainant in a timely manner.
 - b. Follow up with appropriate action to the satisfaction of the District Forester.
 - c. Maintain a written record containing at least: the nature of the complaint, names of those involved in the investigation, findings, and action taken.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

This record shall be kept on file for two years. Copies shall be sent to the area office and the Salem Smoke Management unit.

- d. Inform the complainant of the opportunity to receive follow up of investigation findings.
2. Initial Contact: When a complaint is received, the person receiving the complaint should use the Smoke Complaint Report form found in Appendix 2 of this directive to record the name(s) of the complainant, the description of the complaint, and where the problem is located. If the complaint is received in Salem or by a district other than the one with geographic responsibility, it shall be referred immediately by the person taking the complaint to the proper district.
 - a. If the complainant begins to provide information about health effects resulting from a smoke incident, interrupt the complainant to explain that medical information received by the ODF will become part of the public record and confidentiality cannot be assured.
 - b. If a smoke incident or smoke intrusion is ongoing when the complaint is received, reasonable effort should be made to dispatch the nearest qualified department personnel to the location in question to observe and document the date, time, duration, magnitude, location, scope, and origin of the smoke.
 3. Investigation: Other agencies that may have a role in investigating a complaint shall be promptly informed after the initial contact. ODF personnel will cooperate with other agencies involved in joint complaint investigations.
 - a. If the complaint involves an ongoing occurrence, an individual qualified to and capable of investigating the complaint shall be dispatched to the scene immediately. Exceptions must be approved by the District Forester.

If the problem does not require immediate attention, an onsite investigation may be made at the earliest convenience if such site inspection will contribute to the resolution. In all cases, the complainant should be informed of the planned inspection time, if appropriate.
 - b. Observations, notes, and evidence (if appropriate) shall be made/collected in order to make the following determinations:
 - i.* Does the problem involve the Smoke Management Plan (prescribed burning of forest fuels on forestland)?
 - ii.* Are there any violations? (If so, follow proper enforcement procedures.)

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

iii. What may be done to correct the problem?

iv. What actions may be taken to prevent recurrence of the impact?

4. Follow-up: After the investigation is completed, and with the approval of the District Forester on the findings and any necessary follow-up action, complainants who requested investigation information should be contacted and informed of the findings and follow-up action.
5. Reports: A written complaint investigation report or intrusion report as appropriate must be made for all complaints received. For most complaints, use the complaint form in Appendix 2. This form will be sufficient if it contains the minimum information listed above.

For complaints involving violations, or for which evidence has been collected, an expanded investigation report containing pictures, correspondence, and/or other data may be appropriate.

A file of these reports shall be maintained at the district. Copies must be sent to the area office, Salem Smoke Management unit, and other agencies involved in the complaint. A summary of complaints will be made available to the Smoke Management Advisory Committee when requested.

- J. SSRA Listing Evaluation Procedures: OAR 629-048-0150 establishes criteria for evaluating proposed listing of areas as SSRAs. Using these criteria, an evaluation of a recommendation must be made for consideration by the Board of Forestry. Analysis shall be conducted with the assistance of DEQ air quality staff. This evaluation will consider:
1. Review of prior smoke incidents. Reports of incident investigations will be used to quantify the duration, magnitude, and frequency of impact from forestland prescribed burning.
 - a. The cause(s) of the impacts to determine the likelihood of similar events in the future. Consider the potential of repeated or long-lasting impacts.
 - b. The results of objective measurements, monitoring, or study efforts.
 - c. Burning programs/plans for areas that could drift smoke into the area.
 - d. Geographic factors that would tend to funnel smoke into the area.
 - e. Population and trends for population growth within the community under consideration.
 - f. Impact on prescribed burning programs in the surrounding area.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- g. Probability of the area exceeding National Ambient Air Quality Standards due to potential prescribed burning smoke impacts.
- h. Consideration for other air quality improvement projects ongoing or planned for the area.
- i. Analysis of complaints received, community or governing agency concerns, and recommendations for addition of the area.

Once the evaluation is complete, a report of the results of the analysis must be prepared and a joint recommendation of ODF and DEQ must be submitted to the Board of Forestry. In the event an agreement cannot be achieved between the two departments, ODF will include an explanation of the lack of agreement in the recommendation.

- K. Community Response Plan and Exemption Request: With increased potential for smoke impacts into SSRAs and other smoke sensitive areas, OAR 629-048-0180 outlines a communication framework to inform vulnerable SSRAs about the impact of prescribed burning smoke and how a community can know when they may be impacted by it. These communities will be encouraged to develop a response plan to notify their citizens of potential smoke impacts and how they can reduce their exposure.
- 1. ODF Salem headquarters will develop and distribute a communication framework that will include at least the: (1) purpose and importance of prescribed burning, (2) health risks of wildfire and prescribed fire smoke, (3) how SSRA residents can find out about daily burn plans, and (4) notification of potential prescribed burn smoke impacts.
 - 2. ODF and DEQ will recommend that SSRAs which have experienced repeated smoke incidents and intrusions develop a community response plan lead by the local health department, and in coordination with the local ODF or federal forest district office on how to respond when notified that prescribed burning smoke may enter their community.
 - 3. Communities that develop a community response plan may request an exemption to the one-hour intrusion threshold through their local governing body and County Commission. The request for exemption will be considered for approval by ODF and DEQ under the advisement of Oregon Health Authority.
- L. Quantification of Forest Residues: Consistent evaluation of the fuel available and consumed in each prescribed burn is important for estimating the emissions produced during the burn. Accurate pre-burn quantification of material is essential in minimizing errors in the emissions estimates.
- 1. The fuel consumed by a prescribed burn is calculated by:

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- a. Determining total pre-burn fuel tonnage load.
 - b. Determining average pre-burn duff depth, litter depth and type.
 - c. Computing woody fuel consumption using available tools developed to predict woody fuel consumption.
 - d. Calculating and adding duff and litter consumption.
2. Estimation of the total pre-burn fuel tonnage should be through the application of the "planar transect methods" of inventorying forest residue such as the Brown's inventory method, by use of "Photo Series for Quantifying Forest Residue," or through supplemental photographs developed for specific areas and fuel types. Only if the preceding methods cannot be used should other estimation procedures be employed.
- a. Instructions for the actual measurement of fuels are contained in the "Handbook for Inventorying Downed and Woody Material," U.S.D.A. Forest Service General Technical Report INT-16, 24p, Intermountain Forest and Range Experiment Station, Ogden, Utah. Instructions for the ODF fuel-loading technique can be found on the Oregon Smoke Management website.
 - b. Digital Photo Series and other estimation aids may be accessed through ODF Smoke Management web pages.
 - c. Instructions for fuels inventory and consumption procedures are available via the Internet or from the ODF Smoke Management unit.
3. For units that have already been piled, one of the three following methods should be used:
- a. Statistical sample of pile volume is the preferred method. In the statistical sampling method, a randomly selected group of piles is measured and the corresponding pile type is assigned to each sampled pile (Appendix 2). Species of the debris in the piles is determined and calculation of the total material is made through the Piled Fuels Biomass Emissions web application (<https://depts.washington.edu/nwfire/piles/>), BlueSky Playground, Consume, or through manual calculations.
 - b. Aerial photo interpretation may be used when large-scale aerial photographs of slash piles in harvested units can be evaluated to determine dimensions and volumes. References for application of this technique may be obtained via the Internet or the Pacific Northwest Research Station, USFS.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

- c. Ocular estimate of pile volumes in which the size and number of piles to be burned is estimated through visual techniques where irregular and differing pile types are “smoothed” to an overall size and shape of pile. Estimate of the total amount of material to be burned is then calculated through one of the approved procedures or computer applications.
4. Consumption of material during the burn is estimated using the same tools as for pre-burn fuel loading or through the use of consumption calculation software applications. Post-burn fuel loading may be estimated using measurement samples or reapplication of the photo series. Additionally, the ODF fuel-loading calculator (http://smkmgt.com/weather/tools/fuel_loading/fuel_loading_tool_home.html), the BlueSky Playground (<https://playground.airfire.org>), or USFS Consume application to estimate fuels consumed during the prescribed burn may be used. These may be obtained on the Internet and are also available from the Smoke Management unit.

RESPONSIBILITIES:

- A. Fire Protection Division Chief: The Fire Protection Division Chief is responsible for the coordination of the Smoke Management Plan with cooperating agencies and state and regional air quality authorities.
- B. Fire Protection Division: The Smoke Management unit is responsible for the day to day operation of the Smoke Management program, including:
 1. Issuing Smoke Management forecasts and instructions. Forecasts and instructions shall be issued daily during periods of substantial burning (normally March through June and late September through December). These forecasts are monitored and updated as necessary. When routine written instructions are not being prepared, meteorologists shall coordinate and approve prescribed burns on a case by case basis.
 2. Maintaining the Smoke Management data system. All forestland burning shall be entered into the data system in accordance with the instructions in Appendix 1.
 3. Coordinating with field administrators and identifying and conducting necessary training.
 4. Monitoring the Smoke Management program and providing required summary reports and information to interested parties. Smoke Management unit personnel will prepare reports summarizing annual forestland prescribed burning activities, pertinent emissions information, and summaries of audits and smoke incidents.

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

- C. Area Directors, District Foresters, and Unit Foresters are responsible for ensuring that the provisions of this directive are met and that prescribed burning activities are conducted within the requirements of the Smoke Management rules.
- D. Field Administrators: ODF and federal land management agency field administrators oversee prescribed burning in accordance with the Smoke Management rules, this directive, and daily Smoke Management instructions.

Federal land managers are required by the federal Clean Air Act to follow the directions of the forester for the protection of air quality in their prescribed burning operations.
- E. Burn Bosses: Forest landowners/operators are responsible to conduct forestland prescribed burning according to the Oregon Smoke Management Plan, requirements of field administrators and the instructions issued by the forester.

REVIEW: The Smoke Management directive shall be reviewed according to OAR 629-048-0450(5). The review will be conducted jointly by the State Forester and the Director of Environmental Quality and will include representatives of affected agencies and parties.

AGREEMENT:

In witness whereof, the parties have agreed to the standards and procedures set forth in this directive.

State of Oregon
Department of Forestry

State of Oregon
Department of Environmental Quality

By: _____
Title: _____
Date: _____

By: _____
Title: _____
Date: _____

|

REPORTING SYSTEM SMOKE MANAGEMENT PLAN

General: ODF maintains a computer database to record and administer Smoke Management data. State and private Smoke Management data is entered by field offices into the database via the ODF network. Federal data is collected and consolidated at the USFS regional office and transferred electronically to ODF.

The reporting system is designed to provide a record of:

- A. Forestland scheduled for prescribed burning.
- B. Locations and amounts of daily planned burning.
- C. Burning that has been accomplished.
- D. Fee collection and administration information.
- E. Historical data for calculation of emission estimates and other summaries.

Area Included: Reporting is required throughout the state. The procedures and requirements for frequency of reporting in different areas of the state are identified below. Data are grouped by administrative units, i.e., national forests, Bureau of Land Management districts, national parks, and state forest protection districts.

Types of Burning to be Reported: All burning related to forest management activities should be included in the reporting system, except as noted below. Examples of reported data include slash and brush disposal after logging, road building, scarification, or burning of brush fields for reforestation.

Types of Burning That Should Not be Included: The following types of burning are not under the authority of the Smoke Management Plan and should not be entered into the Smoke Management data system:

- Burning of household or yard maintenance debris such as paper, leaves, lumber, etc.
- Burning related to agricultural practices, including Christmas tree growing, orchard pruning, and grass or grain stubble burning.
- Burning related to demolition, home or other construction, and building site preparation.
- Any burning done in conjunction with a land use change.

Frequency of Reporting: All burns must be entered into the data system prior to ignition. Detailed are highlighted later in this -Appendix. In areas subject to Level 1 regulation, all planned and accomplished burning is entered into the computer data system on a daily basis. Planned burns shall be entered by the day of the burn and accomplishments are reported on the next working day after the unit is burned. In areas of Level 2 regulation, planning burns in the data system is not required and, although daily reporting is encouraged, accomplishments are required to be reported no later than the first working day of the week following the burn.

Procedures:

- A. For private, and local and state government burning:
1. A unit registration is entered into the data system for each burn unit. Information to be entered is contained in Reporting System Coding Sheet (Part 1). These data are entered into the data system at the local ODF field office. The ODF E-notification number, obtained through the local ODF office, will be used for tracking burn units for all landowners. For Level 1 regulated lands, registration is to be completed at least seven days prior to a planned ignition. Districts may waive the seven-day requirement in accordance with OAR 629-048-0300(2) but all units must be registered prior to burning.
 2. Prior to 10 a.m. the day of the ignition, unit numbers of planned burns in Level 1 regulated areas are entered into the data system by field offices. Part 2 is used to assemble the information needed to plan a burn. A listing of planned burns is then compiled and made available to all interested parties. Right-of-way burns need not be planned on a daily basis.
 3. An accomplishment report for each burn is submitted by field offices the day after burning, using Part 3. Burning on Level 2 regulated lands must be entered into the data system no later than the first working day of the week following the burn. The accomplishments are posted as in paragraph 2 above.
 4. Right-of-way burns shall be registered as per step one, above. Right-of-way burns do not have to be planned prior to burning. Accomplishments are reported in accordance with paragraph 3 above.

B. For federal agency forestland burning:

1. Information required for registration is the same as for non-federal burning but units are entered into the FASTRAX data system developed for use by the federal agencies. The primary unit identifier shall be the E-notification number obtained through the local ODF office, or a non-activity "406" number obtained through the Salem headquarters office. In order to ensure unit information is transferred without error to the Smoke Management database, registration must be completed at least 7 days prior to the planned ignition. This may be waived by the State Forester in specific instances to meet agency needs but all units must be registered prior to burning.
2. Units to be burned the next day shall be planned through FASTRAX by the day of the burning.
3. Burning results for all federal burning shall be reported through FASTRAX the day following the burn.
4. Smoke Management data for federal agencies is consolidated by USFS, Region 6 and is then transmitted electronically to ODF. After this data has been input into the Smoke Management data system, reports of errors and other information is sent back to the USFS to verify receipt of the information and facilitate error correction.
5. To facilitate collection of rangeland burning emissions, data for this burning may be entered into the data system as outlined above, using code "s" as the burn type.

Forms: The following forms below shall be used to gather Smoke Management information for entry into the data system. These forms are available in electronic format on the Smoke Management Internet pages. Locally generated forms are discouraged unless approved by the Smoke Management unit manager.

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

OREGON SMOKE REGISTRATION PART 1:

UNIT IDENTIFICATION:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
DATE REGISTERED:					
REGISTRATION #:					
DISTRICT ID:					
OWNERSHIP CODE:					
SALE NAME:					

UNIT INFORMATION:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
TOWNSHIP:					
RANGE:					
SECTION:					
LATITUDE:					
LONGITUDE:					
COUNTY:					
DISTANCE TO SSRA:					
UNIT ACRES:					
CUTTING DATE:					
ELEVATION:					
SLOPE:					
BURN TYPE:					
BURN REASON:					

TREATMENT SUMMARY:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
OPERATOR NAME:					
FUEL SPECIES:					
LANDING R/W ACRES:					
LANDING R/W TONS:					
PILE ACRES:					
PILE TONS:					
BROADCAST ACRES:					
DUFF DEPTH:					

FUEL TONS PER ACRE (SOUND):	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
0 - 1/4"					
1/4 - 1"					
1 - 3"					
3 - 9"					
9 - 20"					
20+ "					

LITTER TYPE:					
LITTER DEPTH:					
LITTER % COVERAGE:					

FUEL TONS PER ACRE (ROTTEN):	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
3 - 9"					
9 - 20"					
20+ "					

ROTTON STUMPS:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
DIAMETER:					
HEIGHT:					
DENSITY:					

LIVE FUELS:	Unit 1:	Unit 2:	Unit 3:	Unit 4:	Unit 5:
SHRUB TYPE:					
SHRUB % COVERED:					
SHRUB HEIGHT:					
TONS PER ACRE:					

COMMENTS:

BILLING INFORMATION:	Unit 1:
Vendor ID:	
First Name:	
Last Name:	
Business Name:	
Address 1:	
Address 2:	
City:	
State:	
Zip:	
Phone:	
Suspended:	

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

OREGON SMOKE REGISTRATION - PLANS (Part 2)

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Planned Date:					
Planned Time:					
Acres Planned:					
Landing R/W Tons Planned:					
Pile Tons Planned:					
Broadcast Tons/Acres Planned:					

OREGON SMOKE REGISTRATION - ACCOMPLISHMENTS (Part 3)

Actual Burn Date:					
Actual Burn Ignition Time:					
Acres Burned:					
Landing R/W Tons Burned:					
Pile Tons Burned:					
Broadcast Tons/Acres Burned:					

Achieved Rapid Ignition:					
Shrub Consumption:					
Duff Fuel Moisture:					
Fuel Moisture 10 HR %:					
Fuel Moisture 100 HR %:					
Fuel Moisture 1000 HR Code:					
Days Since Significant Rain:					
Wind Speed:					

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

Alternative Smoke Management Registration (Part 1 of 3)



Fee payer Name:		<input type="checkbox"/> Operator		<input type="checkbox"/> Landowner	
Billing	Street:				
Address	City:		State:	Zip Code:	
Phone Number:			Signature:		
Operator Name (if different than fee payer):					
Date Register:			District ID:		
Registration #		(12 digit, including unit, YY-DDU-NNNNN-UU)			
Ownership Type: <input type="checkbox"/> Private (P) <input type="checkbox"/> Fed-Not FS (O) <input type="checkbox"/> R6 Fed (F) <input type="checkbox"/> USFS (U) <input type="checkbox"/> State, County, City (S)					
Sale/Unit Name:					
Legal Location: TWN		S	R N G	W	S E C
County:				Distance to SSRA:	
Latitude (DD.DDDD) Decimal Degrees only:					
Longitude (-DDD.DDDD) Decimal Degrees Only, must include the " - " :					
Total Unit Acres:		(Total acres the material you're burning came from.)		Date 70% Felled (m/y):	
Elevation:			Avg. Slope:%		
Type of burn: (Check Only 1)	<input type="checkbox"/> (B) Broadcast Activity <input type="checkbox"/> (F) Broadcast Natural	<input type="checkbox"/> (G) Grapple Pile <input type="checkbox"/> (H) Hand Pile	<input type="checkbox"/> (U) Underburn Activity <input type="checkbox"/> (N) Underburn Natural	<input type="checkbox"/> (L) Landing Piles Only* <input type="checkbox"/> (T) Tractor Pile	<input type="checkbox"/> (R) R/W <input type="checkbox"/> (S) Range
<i>*If unit has landing piles in addition to another type of burn, DO NOT check Landing Piles Only, check the box that pertains to the majority of your unit, and enter the Landing pile tons in the space below.</i>					
Burn Reason: (Check Only 1)	<input type="checkbox"/> (H) Hazard Reduction <input type="checkbox"/> (B) Hazard & Silviculture	<input type="checkbox"/> (W) Wildlife Habitat <input type="checkbox"/> (S) Silviculture	<input type="checkbox"/> (F) Forest Health <input type="checkbox"/> (R) Other	<input type="checkbox"/> (M) Forest Health Maint. <input type="checkbox"/> (E) Ly. 2 Reg., Fee Exempt	
Species: Only 1	<input type="checkbox"/> (D) Douglas Fir/Hemlock/Cedar <input type="checkbox"/> (S) Sage/Bitterbrush	<input type="checkbox"/> (H) Hardwood <input type="checkbox"/> (G) Grass	<input type="checkbox"/> (M) Mixed Conifer <input type="checkbox"/> (P) Ponderosa	<input type="checkbox"/> (B) Brush <input type="checkbox"/> (L) Lodgepole	
Landing R/W Ac:	Landing R/W Tons:	Piled Ac:	Piled Tons:	Broad/Under Burn Ac:	Duff Depth:
Fuel Tonnage:		Tons/Acre (0-.25")		Tons/Acre (.26-1")	
Acres:		Tons/Acre (3.1-9")		Tons/Acre (1.1-3")	
		Tons/Acre (9.1-20")		Tons/Ac. (20.1"+)	
Forest Floor Litter Type:					
<input type="checkbox"/> Short Needle Pine	<input type="checkbox"/> Long Needle Pine	<input type="checkbox"/> Other Conifer	<input type="checkbox"/> Deciduous Hardwood	<input type="checkbox"/> Evergreen Hardwood	<input type="checkbox"/> Grass
Litter Depth (i.e. 1.3")			Litter coverage on ground (%)		
Rotten Stumps: (Average Diameter, Height, and Density or amount per acre.)					
5-9" Ø	Diameter:		9-20" Ø	Diameter:	
	Height:			Height:	
20+ Ø	Density:		20+ Ø	Density:	
	Diameter:			Diameter:	
Live Shrub Type & Cover %:	Live Shrub Height:		Live Shrub Tons per Ac:		
Comments: THIS IS NOT A BURNING PERMIT. (All units must be registered a minimum of 7 days before burning, earlier is preferred.)					

OPERATIONAL GUIDANCE FOR THE OREGON SMOKE MANAGEMENT PROGRAM

▷ **Alternative Burn Plan (Registration Part 2)**

Operator: _____ **Phone:** _____

Planned Date of Burn: _____ **Planned Ignition Time:** _____

Acres Planned: _____ **Landing - R/W Tons Planned:** _____ **File Tons Planned:** _____

Broadcast Tons/AC Planned: _____

Special Problems and Mitigation Instructions:

Personnel:

Equipment:

Other:

Mop-up and patrol is required to prevent the spread of fire from the planned unit. Mop-up and patrol will be provided by the landowner or operator until the danger of fire spreading is over. Sufficient contingency force must be provided by the landowner or operator to ensure control of this burn during periods of adverse weather conditions.

Pursuant to ORS 477.066, 067, 068, and 120 the Landowner and Operator identified on this plan shall immediately proceed to control and extinguish any uncontrolled fire escaping the planned burn area and be liable for up to \$300,000 of the Forester's fire suppression costs. In case the Landowner or Operator fails to perform the duty required, or is willful, malicious, or negligent in the fire origin, or subsequent spread, or fails to make every reasonable effort, the actual costs incurred by the Forester, or a Forest Protection Association in controlling and extinguishing the fire shall be paid by the Landowner or Operator.

Signature of Operator: _____ **Date:** _____

Signature of ODF Forester: _____ **Date:** _____

Attach a map of the unit which shows: 1) access routes, 2) unit boundaries, 3) water sources, 4) problem areas, 5) control lines, 6) adjacent fuels, 7) adjacent landowners.

All burns a minimum of \$30. Registration Fee = \$0.50/ac. Landing Burns (total harvest ac.) = \$0.50/ac. Broadcast/~~Underburn~~ (Actual Acreage of Burn Area) = \$2.60/ac. with landings; \$3.10/ac. without landings. Piled burn (Actual Acreage of Burn Area) = \$2.60/ac. with landings; \$3.10/ac without landings.

FOR OFFICE USE ONLY	
Stewardship Forester: _____	Notes: _____
District ID: _____	_____

**OPERATIONAL GUIDANCE FOR THE OREGON
SMOKE MANAGEMENT PROGRAM**

Alternative Accomplishment Section, (Registration Part 3)

Operator Name:	Phone:	
Unit Name:	Registration #:	
Actual Burn Date:	Actual Ignition Time:	
Actual Acres Burned:	Landing-R/W Tons Burned:	
File Tons Burned:	Broadcast Tons/Ac. Burned:	
Total Broadcast Tons Burned:	Total Tons Burned:	
Ignition Duration:	Achieved Rapid Consumption:	Shrub Consumption:
Duff Fuel Moisture:	Fuel Moisture 10Hr%	1000Hr%
Fuel Moisture Code:	<input type="radio"/> NFDR-th (1000hr moisture from NFDRS model) <input type="radio"/> Adj-thi (user adjusted moistures) <input type="radio"/> Weighted (oven weighted samples)	
Days Since Significant Rain:	Wind Speed:	
Additional Comments:		
<hr/>		
<hr/>		
<hr/>		

INSTRUCTIONS FOR REPORTING SYTEM CODING SHEET

Unless otherwise specified, data shown in quotation marks (" ") should be entered without the quotation marks. All entries are mandatory unless indicated otherwise. Entries consist of only numbers or letters. No special characters such as dashes, commas, etc. may be used.

PART ONE: REGISTRATION INFORMATION

1. **Date registered:** Enter the day of registration in MM/DD/YY format.
2. **Registration number:** Twelve digits, the ten (10) digit E-notification number obtained through the Forest Practices program plus a two digit unit extension that can come from either the E-notification system or can be generated locally. Enter data as one, twelve-digit number with no spaces, dashes, or other characters. For natural, "non-activity" units without E-notification numbers, contact the Salem Smoke Management unit. Blocks of 100 "406" numbers will be issued to local offices for conducting these burns. Units should not be re-registered using a different number during the three-year burning window available under the original registration.
3. **District or Forest Identifier:** A three-digit code as shown in the table, "Smoke Management District ID Numbers" later in this Appendix.
4. **Ownership type:**

USFS - U	Federal (BLM) - F
Other Federal – O	State, County, Municipal – S
Private - P	
5. **Sale name:** Up to 20 characters, letters, and numbers only with no punctuation.
- 6-8. **Legal:** Enter location by township, range, and section, but do not include the letters "T", "R", and "S". Partial townships may be entered. "1/4, 1/2, and 3/4" partials should be entered in decimal format as ".25, .5, or .75", respectively after the full township or range. If the unit covers more than one section, enter the predominant section number.
 6. Township
 7. Range
 8. Section

**INSTRUCTIONS FOR
REPORTING SYSTEM CODING SHEET**

PART 1: BASIC UNIT INFORMATION (Cont.)

Examples:

	Field Number		
	<u>10</u>	<u>11</u>	<u>12</u>
T10S-R10W-S33	10S	10W	33
T10 1/2S-R11E-S25	10.5S	11E	25
T9 3/4S-R7 1/2E-S6	9.7S	7.5E	6

9. **Latitude:** Use decimal degrees only. Enter two digits to left of decimal and four digits to the right of the decimal.
10. **Longitude:** Use decimal degrees only. Enter a “-“ sign and three digits to the left of the decimal and four digits to the right of the decimal.
11. **County Number:**

01	Baker	10	Douglas	19	Lake	28	Sherman
02	Benton	11	Gilliam	20	Lane	29	Tillamook
03	Clackamas	12	Grant	21	Lincoln	30	Umatilla
04	Clatsop	13	Harney	22	Linn	31	Union
05	Columbia	14	Hood River	23	Malheur	32	Wallowa
06	Coos	15	Jackson	24	Marion	33	Wasco
07	Crook	16	Jefferson	25	Morrow	34	Washington
08	Curry	17	Josephine	26	Multnomah	35	Wheeler
09	Deschutes	18	Klamath	27	Polk	36	Yamhill

12. **Distance from nearest Smoke Sensitive Receptor Area (SSRA) boundary:** Round to nearest mile. If within SSRA, use 0. If more than 60 miles, enter "60".

INSTRUCTIONS FOR RECORDING SYSTEM CODING SHEET

PART 1: BASIC UNIT INFORMATION (Cont.)

13. **Acres in unit:** Enter the total number of acres in the unit. Acreage for individual treatment types will be broken out in data fields 21 through 26, below.
14. **Date when 70% of the cutting was completed:** Enter the six-digit code "yyyy-mm", e.g. "2009-12" means that December 2009 was the cutting date. Leave blank for natural fuels or no cutting.
15. **Elevation of burn:** Elevation of burn above sea level in feet. Enter average elevation to the nearest 100 feet.
16. **Slope:** Enter actual average slope. Maximum of three digits, do not enter % symbol.
Example: 30% slope is entered as "30".
17. **Type of burn:** Enter the predominate type of burning. Do not enter "L" for units that are a combination of landings and other burn types.
- | | |
|------------------------|------------------------|
| Broadcast Activity - B | Underburn Activity - U |
| Broadcast Natural - F | Underburn Natural - N |
| Handpile - H | Grapple Pile - G |
| Tractor Pile - T | Landing Only - L |
| Right-of-way - R | Rangeland - S |
18. **Primary reason for burn:**
- | | | |
|--------------------------------|------------------------------------|-------------------|
| Hazard Reduction - H | Silviculture - S | Forest Health - F |
| Wildlife Habitat - W | Hazard and Silviculture - B | Other - R |
| Forest Health, Maintenance - M | Level 2 regulation, Fee Exempt - E | |
19. **Operator Name:** Individual or business conducting the burn (optional entry).
20. **Predominant species of fuel:**
- | | |
|---------------------------------|--------------------|
| Douglas Fir, Hemlock, Cedar - D | Ponderosa Pine - P |
| Lodgepole Pine - L | Mixed Conifer - M |
| Hardwood - H | Brush - B |
| Juniper - J | Grass - G |
| Sagebrush or Bitterbrush - S | |

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 1: BASIC UNIT INFORMATION (Cont.)

21. **Landing or right-of-way pile acres:** Enter the total number of acres from which the material was collected. If less than 1, report as 1. Include all landing acreage for the unit.
22. **Landing and right-of-way pile acres:** Enter the total acres of material contained within all landing (and right-of-way) piles that will be burned. Do not include broadcast woody loading or in-unit piles in this entry (See item 28-33). Leave blank if there are none. Note: Landing/right-of-way and in-unit piles must be registered separately to facilitate fee assessment.
23. **Landing and right-of-way pile tons:** Enter the total acres of material contained within all landing (and right-of-way) piles that will be burned. Do not include broadcast woody loading or in-unit piles in this entry. Leave blank if there are none.
24. **Piled acres:** Enter the number of acres expected to be burned as in unit piles. Leave blank if there are none.
25. **Piled tons:** For piled burns, and piles (other than landing or right-of-way piles) on broadcast and underburn units, enter the pile tonnage expected to be burned in the unit. Leave blank if there are none.
26. **Broadcast acres:** Enter acres of broadcast or underburning expected to be burned. Leave blank if there are none.
27. **Average duff depth:** Report to the nearest tenth of an inch. Do not include the decimal when reporting. Example: 1.6 inches of duff should be reported as "16".
- 28-33. **Woody loading in broadcast and underburns:** Reported as tons per acre by size class. For natural fuels burns, include all fuel types in the appropriate size classes. Round all data to the nearest ton/acre.
 28. 0 - 0.25" loading
 29. 0.26 - 1.00" loading
 30. 1.1 - 3.00" loading
 31. 3.1 - 9.00" loading
 32. 9.1 - 20.00" loading
 33. >20" loading

INSTRUCTIONS FOR REPORTING SYTEM CODING SHEET

34-36. **Forest floor fuel (optional entry):**

34. Litter type: Choose one of the following:

- Short needle pine
- Long needle pine
- Other conifer
- Deciduous hardwood
- Evergreen hardwood
- Grass

35. Litter depth: Record in 10ths of inch.

36. Litter coverage percent: Percentage coverage for entire unit.

37-39. **Rotten fuel tons per acre (optional entry):** Reported as tons per acres by size class.

37. 3 – 9" loading

38. 9 – 20" loading

39. >20" loading

40-42. **Rotten stumps (optional entry):** Report diameter in inches, height in feet (use decimal value for a partial foot), and density number of stumps per acre.

40. Diameter

41. Height

42. Density

43-46. **Live fuels (optional entry):**

43. Shrub type: Choose one of the following.

Broadleaf

Evergreen

Sage

44. Shrub percent coverage: Coverage over entire unit

45. Shrub height: In tenths of feet

46. Tons per acre: shrubs consumed by burning

47. **Comments (optional entry):**

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 2: PLANNED BURN

The following information shall be entered into the computer by the day the unit is planned for burning for all districts and forests in Level 1 regulation, except for right-of-way piles. Planning of right-of-way piles and areas in Level 2 regulation is encouraged but not required.

1. **Unit number:** The twelve (12) digit number that was entered in Part 1 is entered.
2. **District or forest identifier:** As used in Part 1.
3. **Planned date:** Enter the date the unit is planned to be burned using the format mm/dd/yy.
4. **Estimated ignition time:** Use the 24-hour clock and local time. For example, a planned ignition time of 2:00 p.m. is entered as 1400.
5. **Acres planned:** Enter the number of acres that are planned to be burned. For piled units this is the acres from which the material was gathered.
- 6-7. **Expected fuel consumption:**
 6. **Landing pile tons:** For right-of-way and landing pile units, enter the total tons expected to be burned. Leave blank if there are none.
 7. **Unit pile tons:** For piled burns, and piles (other than landing or right-of-way piles) that are planned to be burned on broadcast and underburn units, enter the pile tonnage, in total tons, of woody material expected to be burned. Leave blank if there are none.
8. **Expected fuel consumption in broadcast or underburns:** Enter the number of tons of woody fuel, excluding piles and ground fuel expected to be burned in tons per acre.

INSTRUCTIONS FOR REPORTING SYSTEM CODING SHEET

PART 3: ACCOMPLISHED BURN

The following information shall be entered into the computer the next business day after the burning occurred for all districts and forests in Level 1 regulation.

For right-of-way piles and all burning in areas of Level 2 regulation, accomplished burning shall be entered into the data system by close of the first business day of the week following ignition. Daily reporting of accomplishments in Level 2 areas is encouraged.

For landing and piled units only items 1 through 8 need to be reported.

1. **Unit number:** Use the twelve (12) digit number that was entered in Part 1 and Part 2.
2. **District or forest identifier:** As used in Part 1 and Part 2.
3. **Actual date of burn:** Enter the date the unit was burned using the format mm/dd/yy.
4. **Actual ignition time:** Use the 24-hour clock and local time.
5. **Number of landing/right-of-way acres burned:** This can be more or less than the number planned. Include slop-over acres in the total. Report only those acres treated by fire, not the total unit size if different. In the event more acres were burned than initially registered and this area was not treated as a wildfire, the additional acreage must be registered and accomplished as a separate unit. Fees shall be applied as appropriate.
6. **Landing or right-of-way tons burned:** (may be more or less than that entered in Parts 1 and 2): Enter the total tons of material actually burned in the piles.
7. **Pile acres burned:** Report only those acres treated by fire, not the total unit size if different. This can be more or less than the number planned. Include slop-over acres in the total. In the event more acres were burned than initially registered and this additional area was not treated as a wildfire, the extra acreage must be registered and accomplished as a separate unit. Fees shall be applied as appropriate.
8. **Pile tons burned:** Enter the pile tonnage, in total tons, of material burned. Do not include landing or right-of-way tonnage in this field.

**INSTRUCTIONS FOR
REPORTING SYSTEM CODING SHEET**

PART 3: ACCOMPLISHED BURN (Cont.)

9. **Fuel consumed in broadcast and underburn portion of units:** Enter the amount of woody fuel and ground fuel burned as tons per acre. This number can be more or less than the entries made in Part 1 and Part 2.
10. **Was rapid ignition achieved?**

Enter "Y" or "N", use subjective judgment to answer.
11. **Shrub consumption (optional entry):** Percentage of shrubs consumed in unit.
12. **Duff fuel moisture:** Enter either dry (30%), normal (70%), or moist (120%).
13. **10-hour fuel moisture:** Enter the percentage, rounded to whole numbers. Example: 15.4% fuel moisture should be entered as "15".
14. **1000-hour fuel moisture:** Enter the percentage without the "%". Example: 24% fuel moisture should be entered as "24".
15. **1000-hr fuel moisture code:** Method used to determine. Enter one of the selections below for the method used to determine 1000-hr moisture.
Method
NFDR-th
Adj-th
Weighed
16. **Number of days since significant rain:** West of the Cascades: Enter the number of days since 0.5 inches of rain have fallen within a 48-hour period.

East of the Cascades: Enter the number of days since 0.25 inches of rain have fallen within a 48-hour period.
17. **Wind speed:** In miles per hour

SMOKE MANAGEMENT DISTRICT ID NUMBERS

District/Forest	Unit	ID	District/Forest	Unit	ID	District/Forest	Unit	ID
Astoria		521	National Park Svc		09x	Walker Range		991
Central Oregon		95x		Crater Lake	090	Wallowa-Whitman N.F.		16x
	Fossil	953		Oregon Caves	091			
	John Day	952	North Cascade		58x		Eagle Cap	165
	Monument	956		Molalla	581		Hell Canyon NRA	164
	Prineville	951		Santiam (Linn)	583		La Grande	166
	Sisters	955		Santiam (Marion)	582			
	The Dalles	954	Northeast Oregon		97x			
Columbia Gorge Scenic Area		220		Baker	972		Wallowa Valley	162
Coos District		740		La Grande	971		Whitman	163
Coos FPA		72x		Pendleton	973	West Oregon		55x
	Bridge	722		Wallowa	974		Dallas	552
	Coos Bay	721	Ochoco N.F.		07x		Philomath	551
	Gold Beach	723		Crooked River National Grassland	075		Toledo	553
Deschutes N.F.		01x		Lookout Mountain	071	Western Lane		781
	Bend/Fort Rock	011		Paulina	072	Willamette N.F.		18x
	Crescent	012	Rogue-Siskiyou N.F.		10x		Detroit	184
	Sisters	015		Gold Beach	103		McKenzie River	187
Douglas FPA		73x		Wild Rivers	102		Middle Fork	185
	Central Douglas	733		Siskiyou Mountains	101		Sweet Home	183
	North Douglas	731		High Cascade	106	Winema N.F.		20x
	South Douglas	732		Powers	105		Chemult	201
Forest Grove		53x	Siuslaw N.F.		12x		Chiloquin	202
	Columbia City	532		Central Coast	128		Klamath	203
	Forest Grove	531		Hebo	121			
Fremont N.F.		02x		Oregon Dunes	124			
	Bly	021	South Cascade		77x			
	Lakeview	022		Eastern Lane	771			
	Paisley	023		Sweet Home	772			
	Silver Lake	024	Southwest Oregon		71x			
Klamath N.F.		301		Central Point	711			
Klamath-Lake		98x		Grants Pass	712			
	Klamath Falls	981	Tillamook		511			
	Lakeview	982	Umatilla N.F.		14x			
Malheur N.F.		04x		Heppner	142			
	Blue Mountain	041		North Fork John Day	145			
	Emigrant Creek	042		Walla Walla	146			
	Prairie City	044	Umpqua N.F.		15x			
Mt Hood N.F.		06x		Cottage Grove	151			
	Barlow	061		Diamond Lake	153			
	Clackamas	065		North Umpqua	156			
	Hood River	066		Tiller	152			
	Zig Zag	069						

REPORTING SMOKE INTRUSIONS AND SMOKE INCIDENTS

- A. Smoke intrusion and the smoke incident log provide a descriptive record of smoke impacts into SSRAs or other sensitive areas. Intrusion reports shall be made for prescribed burning smoke that enters SSRAs at levels defined as an intrusion. Smoke entering SSRAs at levels below the intrusion threshold or other areas sensitive to smoke shall be identified and reported as smoke incidents. The reports are used to evaluate the causes of impacts and to identify potential areas of improvement in forecasts, instructions, and operational procedures that will minimize future smoke impacts. The incident log may be useful in an evaluation if the area is recommended for inclusion on the list of SSRAs. Reports shall be summarized in annual analyses of Smoke Management data compiled by the Smoke Management section.
- B. Field units (i.e., state districts and associations, resource areas, and national forests) are responsible for monitoring smoke from burning activity and reporting smoke impacts to the Smoke Management Meteorologist. The Meteorologist will determine whether the smoke impact is a smoke incident or a smoke intrusion. If the smoke impact is a smoke incident it will be logged on a smoke incident log detailing the date, time, duration, magnitude, area affected, responsible agency, and any pertinent comments. If the smoke impact is validated as a smoke intrusion the Meteorologist will use Form 1-4-1-301 to detail the impact.
- C. The Salem Smoke Management unit completes sections A through E of the report. The report will be forwarded to the field to complete section F. The field unit will return the completed report back to the Smoke Management unit for dissemination to affected field offices, ODF leadership, DEQ, and the Smoke Management Advisory Committee. In the event that a smoke intrusion involves burns conducted in more than one field unit, the Smoke Management unit will combine the individual field reports into a single summary report. Additionally, the Smoke Management unit shall:
1. Prepare and transmit to applicable field offices preliminary reports of smoke intrusions as soon as they become aware of smoke entering at particulate matter levels above the one-hour or 24-hour thresholds.
 2. Coordinate with other offices and agencies to develop descriptive reports of smoke intrusions.
 3. Prepare an annual summary of smoke intrusions and smoke incidents. This summary is included in reports of annual Smoke Management activities required by OAR 629-048-0450 and presented to the Smoke Management Advisory Committee as needed.

REPORTING SMOKE INTRUSIONS AND SMOKE INCIDENTS

5. If a smoke intrusion is determined to exceed the National Ambient Air Quality Standards (NAAQS), the Smoke Management Meteorologist will immediately notify DEQ of the impact if DEQ has not already contacted ODF about the intrusion. All other aspects of the intrusion will continue to be processed similar to a smoke intrusion described above. When the intrusion report is complete and disseminated, ODF, DEQ and members of the organization(s) responsible for the burn(s) will meet either by phone or in person to discuss why the exceedance occurred and how it can be prevented in the future. Details of any outcomes to prevent future NAAQS exceedances will be highlighted in the Smoke Management Annual Report.

Procedures:

1. Burn bosses, field administrators, or other forestry personnel shall report suspected smoke impacts into SSRAs, Class I Areas, or areas sensitive to smoke by telephone to the Smoke Management forecaster as soon as possible. If seven-day operations are not in progress at Salem, then telephone by noon on the first workday after the impact.

Personnel observing smoke entering an SSRA from burn units outside of their administrative area should also submit telephone and written reports as outlined above. In addition, they should notify the field office that has administrative responsibility for the problem unit(s) of the fact that smoke is entering or about to enter a SSRA.
2. An evaluation of the impact shall be made by field personnel, time and workload permitting, to determine the extent, magnitude, and duration of the smoke impact.

SMOKE INTRUSION REPORT
Form 1-4-1-301

Intrusion #: [] Intrusion Date(s): [] Location(s): []

SECTIONS A-E TO BE COMPLETED BY SALEM FORECASTER:

A. SMOKE ORIGIN:

12-digit unit Number(s)	Fire Zone	District Forest	Location (TRS)	Owner Class	Elev	Acres	Tons	Burn Date	Start Time	End Time
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]
[]	[]	[]	[]	[]	[]	[]	[]	[]	[]	[]

B. INTRUSION SUMMARY:

1. Area Affected: [] SSRA (Yes No)

2. Intrusion Date: [] Start Time: [] End Time: [] Duration: [] hours

3. Highest Pm2.5: [] or lowest prevailing visibility (during intrusion): []

C. ODF SMOKE FORECAST:

	Mixing Height	Surface Wind	Transport Wind
At Start of Ignition	[]	[]	[]
At End of Ignition	[]	[]	[]
Next 12 hours	[]	[]	[]

D. ODF SMOKE INSTRUCTIONS:

- Written instructions (if applicable): []
- Verbal instructions (if applicable): []

E. SMOKE MANAGEMENT WEATHER OFFICE REPORT:

- Describe general weather conditions (including observed mixing heights and transport winds): []
- Comments: []

SECTION F TO BE COMPLETED BY FIELD PERSONNEL:

F. FIELD REPORT:

- Describe general weather conditions observed during the burn period and for the next 6 hours (sky conditions, wind speed and direction, height of smoke plume, direction of smoke travel, etc. []
- Comments (Note other sources of smoke that may have contributed to the intrusion): []
- Public complaints: []

[] / [] District/Forest Representative/Date [] / [] Smoke Management Forecaster/Date

SMOKE MAGNITUDE DETERMINATION FROM VISIBILITY OBSERVATIONS

INTRODUCTION: When no particulate monitor data is available to determine the magnitude of a smoke impact, visibility data may be used to estimate the level of impact when such data is available from a reliable source. The observation procedure outlined below may be utilized by field units to gauge impacts in areas where no monitoring data is available. Prevailing visibility is used as a surrogate for particulate data. Use the procedure outlined below to determine prevailing visibility and the visibility table in Appendix 2, page 6 to make an estimate of the magnitude of a smoke impact.

OBSERVATION PROCEDURE:

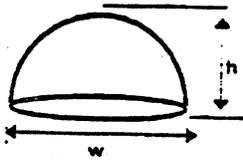
1. Determination of sector visibility: When the visibility is not uniform in all directions, divide the horizon circle into sectors which have approximately the same visibility. Using available landmarks, aided by a detailed local area map, determine the greatest distances that can be seen in each segment of the horizon circle. Base this estimate on the appearance of the landmark. If the markers are visible with sharp outlines and little blurring of color, the visibility is much greater than the distance to the markers. If a marker can barely be seen and identified, the visibility is about the same as the distance to that marker. When the visibility is greater than the distance of the farthest markers, estimate the greatest distance you can see in that direction. Note the portions of the circle with similar visibility characteristics.
2. Determination of prevailing visibility: After sector visibilities have been determined, resolve them into a single value for reporting purposes. To do this, use either the greatest distance that can be seen throughout at least half the horizon circle, or if the visibility is varying rapidly during the time of the observation, use the average of all observed values. Prevailing visibility should be reported in miles.

EXAMPLES – Determining Prevailing Visibility (Prevailing Visibility indicated by asterisks)												
<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>5</td> <td>90</td> </tr> <tr> <td><u>2½ *</u></td> <td><u>90</u></td> </tr> <tr> <td>2¼</td> <td>90</td> </tr> <tr> <td>2</td> <td>90</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	5	90	<u>2½ *</u>	<u>90</u>	2¼	90	2	90		
Visibility (Miles)	Approximate Degrees											
5	90											
<u>2½ *</u>	<u>90</u>											
2¼	90											
2	90											
<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>10</td> <td>40</td> </tr> <tr> <td><u>8*</u></td> <td><u>150</u></td> </tr> <tr> <td>6</td> <td>70</td> </tr> <tr> <td>5</td> <td>100</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	10	40	<u>8*</u>	<u>150</u>	6	70	5	100		
Visibility (Miles)	Approximate Degrees											
10	40											
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6	70											
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<table border="0"> <tr> <td>Visibility (Miles)</td> <td>Approximate Degrees</td> </tr> <tr> <td>8</td> <td>100</td> </tr> <tr> <td>6</td> <td>50</td> </tr> <tr> <td><u>5*</u></td> <td><u>130</u></td> </tr> <tr> <td>4</td> <td>80</td> </tr> </table>	Visibility (Miles)	Approximate Degrees	8	100	6	50	<u>5*</u>	<u>130</u>	4	80		
Visibility (Miles)	Approximate Degrees											
8	100											
6	50											
<u>5*</u>	<u>130</u>											
4	80											

OREGON SMOKE MANAGEMENT SMOKE COMPLAINT REPORT		
Complaint From:	Name:	Organization:
	Address:	Phone:
Received by:	Name:	Office:
	Date:	Time:
Complaint Source:	<input type="checkbox"/> Phone:	<input type="checkbox"/> Mail
	<input type="checkbox"/> In Person	<input type="checkbox"/> Email:
	<input type="checkbox"/> Other:	
Investigated By:	Name:	Office:
	Date:	Time:
Location of Smoke Impact:		
Location of Smoke Source:	T R sec	Unit Number(s):
Description of Complaint:		
<input type="checkbox"/>	Inform the complainant that they have ability to receive follow-up.	
Investigation Results:	<input type="checkbox"/> Burn Permit Issued	Landowner
	Reported Tons/Acres	Actual Tons/Acres
	<input type="checkbox"/> In data system	Citation issued
	<input type="checkbox"/> Instruction Compliance	<input type="checkbox"/> Referred to other Agency
	<input type="checkbox"/> Other	
Remarks:		
Distribution:	<input type="checkbox"/> Smoke Management	USFS: R6 <input type="checkbox"/> District <input type="checkbox"/>
	<input type="checkbox"/> District	BLM: State Office <input type="checkbox"/> District <input type="checkbox"/>
	<input type="checkbox"/> Area	Tribe/Other Agency <input type="checkbox"/>
Complaint No.	Signature	Date

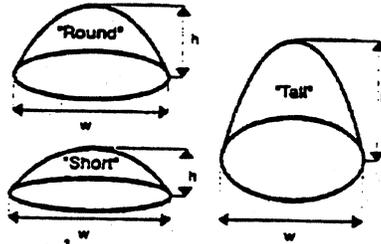
SHAPE CODE CHARTS

1. Half-section of Sphere



Half of a ball, where the width is approximately twice the height, and the sides are evenly rounded.

2. Parabaloids

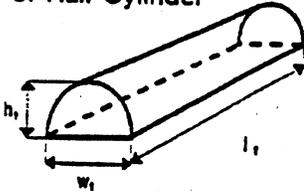


Pile height is same as radius (half diameter), but surface tapers in a parabola towards the top.

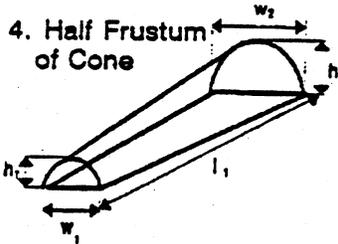
Sides taper in a parabola towards the top, where the height is greater than the radius (half the width).

Pile height is less than half the radius, and the sides drop down to the base in a parabola.

3. Half Cylinder



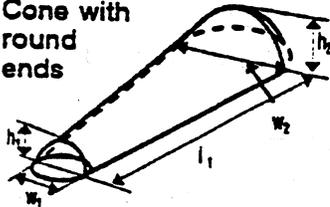
Logs and debris are generally aligned in parallel. Pile shape is rounded side-to-side, with both ends of the pile approximately the same height.



4. Half Frustum of Cone

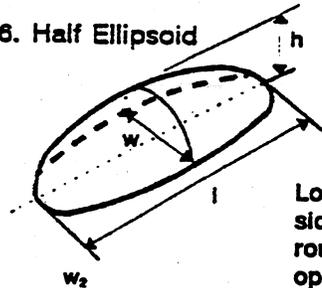
Logs and debris are generally aligned in parallel. Pile shape is rounded side-to-side, but heights of opposing ends are not equal (pile tapers).

5. Half Frustum of Cone with round ends



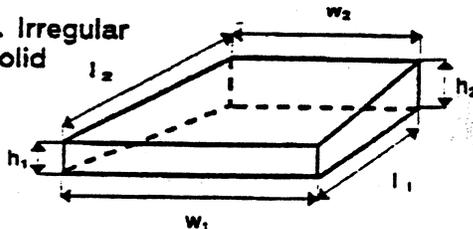
Pile shape is generally the same as #4, but the ends are rounded, and appearance is similar to half a pear.

6. Half Ellipsoid



Long, tapering pile, rounded side-to-side, with well-rounded ends. Widths of opposing ends are not equal.

7. Irregular Solid



Irregularly-shaped pile with straight but uneven sides. Dimensions for opposing sides are not necessarily equal.

AERIAL MONITORING

The form below (available on the department Smoke Management website) may be used to record observations during aerial monitoring flights. Completed forms should be forwarded to the forecaster after the flight has been completed.

Aerial monitoring should be conducted during periods of considerable burning and when burning in less than excellent atmospheric dispersion conditions. Monitoring should be scheduled far enough into the burns to determine the extent and direction of smoke drift.

Instructions for entries are found on the second page of the form. Flying parallel to the smoke plume is recommended to ensure accurate determination of the direction of movement of the smoke. The plume type diagrams provide a quick reference for generalized descriptions. If they do not adequately describe the character of the observed smoke, specific descriptions of observed plumes should be made.

The chart on the second page of the form may be used during takeoff and/or landing to record a temperature profile using the aircraft outside air temperature sensor. These profiles are an aid to help determine atmospheric stability and mixing height.

SPECIAL PROTECTION ZONE MAPS

Special Protection Zone (SPZ) boundaries are shown in maps in this appendix. SPZ rules are found in OAR 629-048-0135 and 0137.

