Oregon Wildfire Response Protocol for Severe Smoke Episodes

May 28, 2013 **(updated: August 27, 2013)**

The following agencies collaborated on this guidance document:

Oregon Department of Environmental Quality
Lane Regional Air Pollution Authority
Oregon Health Authority
Oregon OSHA
Oregon Emergency Management
Oregon Department of Forestry
US Forest Service

Based on agreement between the participating agencies, the original version of this multi-agency document shall be maintained by DEQ. Future updates to this document shall be made in collaboration with all parties.

DEQ
State of Oregon
Department of
Environmental
Quality

Alternative formats (Braille, large type) of this document can be made available.
Contact DEQ's Office of Communications & Outreach, Portland, at (503) 229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

Oregon Wildfire Response Protocol
for Severe Smoke Episodes

1. Purpose

This protocol is intended to provide guidance for the state and federal agencies in Oregon who respond to severe smoke episodes caused by large or long duration wildfires, to ensure a coordinated response, in order to mitigate impacts on public health. This protocol also identifies other organizations, partners, and other governmental entities (county, city, and tribal) that state and federal responders need to coordinate with during these episodes. For all parties, it highlights general duties and responsibilities, provides examples of agency actions and assistance needed, desired outcomes, and recommended public health actions based on the level and duration of smoke exposure. This protocol is focused specifically on smoke/air quality impacts, as compared to the safety risk posed by the fire itself, which is the highest priority when it comes to protecting the public from wildfire. It should be noted this protocol is intended to guide needed resources to air quality impacts of major wildfires and does not replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties.

2. Agency/Organization Contact List

This protocol applies but is not limited to the following agencies, organizations and offices:

CONTACT AGENCY OR ORGANIZATION	
Federal	
1. Federal Land Managers (FLM): Includes U.S. Forest Service, Bureau of Land Management [BLM], and Fish & Wildlife Service	Region 6 headquarters in Portland (Forest Service and BLM)
2. Federal Emergency Management Agency (FEMA)	Region 10 office Bothell WA
National	
3. Air Resource Advisor (ARA)	TBD (to be assigned to major Oregon WFs)
4. Red Cross	5 regional offices in Oregon
State	
5. Oregon Dept of Environmental Quality (DEQ)	DEQ Headquarters in Portland and DEQ regional offices
6. Oregon Health Authority (OHA)	Agency located in Portland
7. Oregon Military Department, Office of Emergency Management (OEM)	Agency located in Salem

8. Oregon Occupational Safety and Health Administration (OR-OSHA)	OR-OSHA Headquarters located in Salem, field offices around the state.
9. Oregon Dept of Forestry (ODF)	Agency located in Salem
10. State Fire Marshal	Agency located in Salem
11. Oregon Governor Office	Located in Salem
12. Governor's Office Regional Solutions Centers	Located in different regions of the state
Local	
13. County Health Department	In county affected by WF smoke. See Appendix A for contact information.
14. Lane Regional Air Protection Agency (LRAPA)	Lane County agency located in Springfield
15. School Districts	In county affected by WF smoke
16. City and local government	Affected by WF smoke
Tribal	
17. Tribal Government	Any tribal lands affected by WF smoke. See Appendix A for contact information.

3. Agency areas of expertise and involvement

Table 1 identifies the general areas of expertise of each agency, organization, or office, as an indication of the assistance that would be provided, and the level of involvement anticipated. While the level of involvement is relative to the severity of the wildfire smoke and the resultant effect on air Quality (AQ), some agencies would be expected to play more of a lead role, requiring more frequent daily communication and coordination, while other agencies would be required to do less and on more of an "as-needed basis".

Table 1

CONTACT AGENCY OR ORGANIZATION	General area of expertise/assistance	Anticipated level of involvement
Federal		
1. Federal Land Managers (US Forest Service, BLM, Fish & Wildlife Service)	Wildfire suppression/containment, ensure incident management team is on the ground, provide wildfire status updates, assist in AQ monitoring and public outreach/coordination.	Extensive – depends on size of WF, often the lead agency.
2. FEMA	Federal response agency for natural disasters	Low, unless smoke levels and fire danger pose an extreme threat
National		
3. Air Resource Advisor (ARA) – reports to Incident Command and/or Agency Administrator	Technical Specialist that works with Incident Command Team during major WFs. Expertise in AQ monitoring and modeling, and addressing public health, transportation safety, firefighter safety.	Extensive – newly created position to provide assistance to incidents, and facilitate state response to air quality smoke impacts from major wildfires.

CONTACT AGENCY OR ORGANIZATION	General area of expertise/assistance	Anticipated level of involvement
4. Red Cross	Providing aid and assistance for natural disasters. For wildfire, primary role is to identify and set up clean air shelters.	Depends on severity of smoke impact and risk to public health.
State		
5. Oregon Dept. of Environmental Quality (For WF smoke affecting Lane Co, contact **LRAPA**. See #13 above and Appendix A #10)	Monitoring AQ in the state*, determining if health standards are being exceeded, identifying areas at greatest risk of health impact, public/media outreach and coordination with FLMs, OHA, county health departments, others as needed. (*for AQ impacts in Lane Co. see LRAPA)	Extensive during periods of elevated smoke levels.
6. Oregon Health Authority	Advising state, federal, and local authorities on health risk from smoke and potential public health interventions to mitigate it. Assisting DEQ, OR-OSHA, and local health departments in communication and outreach.	Depends on WF severity and extent to which local health officials need assistance, or where no local health authority is in place.
7. Oregon Military Department, Office of Emergency Management	Coordinating and facilitating emergency planning, with state emergency support function, and local emergency services agencies and organizations.	Depends on severity and specific requests by local emergency management agencies for state assets. High involvement if Governor declares state of emergency.
8. Oregon OSHA	Address worker health and safety in the workplace, and firefighters in the field, through enforcement and/or consultation. Can assist in the evaluation of air quality concerns.	Depends on severity and specific requests for worker protection.
9. Oregon Dept. of Forestry	Upon request, provide wildfire smoke forecasts where needed.	Primarily providing daily smoke forecasts.
10. State Fire Marshal	Assist in response to fire danger, coordinate with local fire officials.	Primary response to fire danger and suppression, less on smoke risk
11. Oregon Governors' Office	Coordinate with multiple agencies, especially if Governor declares a state of emergency.	Update on as-needed basis, unless state of emergency is declared.
12. Governor's Office Regional Solution Centers	Coordinate with multiple agencies, especially if Governor declares a state of emergency.	Update on as-needed basis, unless state of emergency is declared.
Local		
13. County Health Department	Notify public and media of health risk from smoke. Coordinate with DEQ, OHA, FLMs and OR-OSHA.	Extensive during periods of unhealthy to hazardous smoke levels.
14. School Districts	With assistance, determine if student health at risk, need to cancel school events or announce school closures.	On as-needed basis during periods of unhealthy to hazardous smoke levels.

CONTACT AGENCY OR ORGANIZATION	General area of expertise/assistance	Anticipated level of involvement
15. City and local government	With assistance, determine health risk to community, public safety, need to cancel outdoor events, notify local businesses, alert fire and police.	On as-needed basis during periods of unhealthy to hazardous smoke levels.
Tribal		
16. Tribal Government	Coordination with above agencies. Similar role to #12 and #14 above.	Can be high if WF impact is severe.

4. Agency actions and desired outcome

Table 2 describes the different actions and assistance needed during major wildfire events, the agency, organization, or office expected to take such action, and the desired outcome.

Table 2

ACTION NEEDED	Lead agency and action taken	Desired Outcome
1. Air Monitoring		
Measuring ambient AQ	Mostly DEQ as lead agency. FLM can provide additional monitoring equipment via local and national cache resources. FLM and ARA can assist in deployment and data collection.	Ability to track ambient AQ levels in communities receiving the heaviest impact.
Indoor AQ exposure	OR-OSHA is lead agency to evaluate air quality concerns for workers. DEQ, FLMs, and OHA can provide advice to schools upon request.	Ability to monitor indoor smoke levels in work environments and schools.
2. Smoke Forecasting and Modeling		
Smoke weather forecast	ODF as lead agency. DEQ assist in coordination. FLM can provide Incident Meteorologists to assist in forecasting. National Weather Service can provide "spot forecasts" for wildfire.	Provide advance notice of possible smoke movement and impacts, improve public notification, lower risk of public exposure to high smoke levels.
Smoke modeling	FLM and ARA can provide smoke modeling forecasts if requested.	Complementary to above.
3. Issuing Health Warnings		
Providing public with frequent smoke updates on potential health risk, and recommended public health actions via the web and media.	Coordination between DEQ, ARA, OHA, county health dept, local government, and tribes. Assistance from FLM, and from ODF wildfire forecasting.	Frequent coordinated updates provided to the public via Oregon Smoke Blog, DEQ, OHA, local government websites, press releases and outreach to TV and print media.

ACTION NEEDED	Lead agency and action taken	Desired Outcome
4. Website management		
Updating the Oregon Smoke Blog website (see description under #6 below)	Blog website initiated by FLM, and updated by website management team, from each of the key agencies.	Provide the public with comprehensive "one-stop" website on wildfire status, AQ levels, health risk, public shelters, press releases, and other critical info.
Updating DEQ, OHA, and local websites	Managed by respective agency. Supplements the Oregon Smoke Blog website.	Complements the above website.
5. Public Actions		
Cancel or modify public events, outdoor and business activities. Consult with schools on limited hours or closure.	Decision made at the tribal and local level, by government or school authorities, after consulting with DEQ, ARA, OHA, FLM, and possibly OSHA.	Prompt action taken, via notification of media, and posting info on Oregon Smoke Website and other relevant websites.
Set up public shelters, assist schools or other public buildings in protecting from smoke	Red Cross in the lead for setting up public clean air shelters. Decisions about protecting schools and public buildings made at tribal and local level. Assistance to above by FLM, ARA, DEQ, OHA, and possibly OR-OSHA.	When determined necessary, prompt action taken to set up clean air shelters, or identify measures for protecting schools and public buildings from smoke.
Evacuation of sensitive populations	Decision made by local health officials and tribal/local government, with assistance from DEQ, ARA, OHA, FLM, and possibly OR-OSHA.	Prompt action taken if dangerous smoke levels expected to persist for a prolonged period. Require close communication with DEQ, OHA, FLM, OR-OSHA, and possibly OEM, Red Cross, SFM, and State Police.

5. Recommended Public Health Actions, Based on Level and Anticipated Duration of Exposure to Wildfire Smoke

Wildfire smoke is made up primarily of small particles, gases and water vapor, with trace amounts of other hazardous air pollutants. The component most harmful to health is small particulate matter, less than 2.5 microns in diameter ($PM_{2.5}$), which can be inhaled deeply into the lungs and enter the bloodstream. This can lead to cardiovascular and respiratory problems in persons with asthma, emphysema, heart disease and various other medical conditions. The elderly and children are also high-risk groups.

Table 3 identifies recommended public health actions to be taken, based on the intensity and expected duration of smoke exposure. The AQI category and $PM_{2.5}$ levels are derived from the federal $PM_{2.5}$ health standard of 35 ug/m^3 for a 24-hour average (the AQI category "unhealthy for sensitive groups"). Decisions about which public health actions to recommend would be based on both monitoring data and the projected duration of unhealthful air quality as noted in the table, to be used primarily by affected local health jurisdictions in consultation with DEQ, OHA and other agencies that are parties to this protocol.

If the need to implement interventions outlined in this table is anticipated, an intelligence briefing can be convened in person or by phone to review available information and plan next steps. Such a briefing can be convened by management staff at the Department of Environmental Quality, the Oregon Health Authority Health Security, Preparedness, and Response Program, or Oregon-OSHA. Affected local jurisdictions can contact these agencies to request that a wildfire air quality intelligence briefing be convened to coordinate communications and/or integrate with an existing Incident Command responding to the wildfire threat as necessary. Table 3 is adapted from the 2008 guidance document *Wildfire Smoke: A Guide for Public Health Officials*, described below under #8.

Mitigation actions in the table are suggested as considerations. Whether or not the listed actions should actually be taken at various $PM_{2.5}$ levels depends on additional factors in the bulleted list below the table. As air quality worsens, recommended public health actions for better air quality categories should also be implemented. For example, if the air quality is considered "unhealthy," then actions should be followed for "unhealthy for sensitive groups," "moderate" and "good" air quality days.

Table 3

	Recommended Public Health Actions Based on smoke duration (rolling 24-hr average)		
AQI Category (24-hr average $PM_{2.5}$ in µg/m^3)	**24 Hours**	**24-72 Hours**	**More than 72 Hours**
Good (0-12 µg/m^3)	If smoke event is forecasted, implement communication plan		
Moderate (13-35 µg/m^3)	- Respond to media as needed - Distribute information about exposure avoidance	same as 24-hr	same as 24-hr
Unhealthy for Sensitive Groups (36-65 µg/m^3)	- Issue press/website releases identifying sensitive groups, potential health effects + symptoms, and ways to reduce exposure	- Issue press/website releases identifying sensitive groups, potential health effects + symptoms and ways to reduce exposure (shelter-in-place, move to cleaner air setting in community, or consider leaving area until air quality improves)	- Issue press/website releases identifying sensitive groups, potential health effects + symptoms and ways to reduce exposure (shelter-in-place, move to cleaner air setting in community, or consider leaving area until air quality improves) - Consider opening and publicizing clean air shelter for sensitive groups

AQI Category (24-hr average $PM_{2.5}$ in $\mu g/m^3$)	24 Hours	24-72 Hours	More than 72 Hours
Unhealthy (66-150 $\mu g/m^3$)	- Consider "Smoke Days" for schools (a no school day, and canceling outdoor school events) - Consider cancelling outdoor public events - Recommend that sensitive groups shelter-in-place	- Recommend Smoke Days for schools (assess if indoor AQ is better than outdoors) - Recommend public limit strenuous outdoor activities - Recommend cancelling outdoor public events. - Recommend that sensitive groups shelter-in-place or consider leaving area until AQ improves	- Recommend Smoke Days for schools (check if school indoor AQ is safer and more protective of health) - Recommend public limit strenuous outdoor activities - Recommend cancelling outdoor public events - Open and publicize clean air shelters for sensitive groups
Very Unhealthy (151-250 $\mu g/m^3$)	- Recommend Smoke Days for schools (assess if indoor AQ is better than outdoors) - Recommend public limit strenuous outdoor activities - Recommend cancelling outdoor public events. - Consider public announcement recommending shelter-in-place for general population	- Cancel outdoor public events - Cancel school (unless AQ better than outdoors). - Recommend shelter-in-place for general population - Share info about periods of improved AQ to guide essential outdoor activity and ventilation of dwellings - Warn about medical risk for sensitive groups and encourage them to shelter-in-place or leave area until AQ improves	- Cancel outdoor public events - Cancel school (unless AQ better than outdoors). - Recommend shelter-in-place - Share info about periods of improved AQ to guide essential outdoor activity and ventilation of dwellings - Warn about medical risk for sensitive groups and encourage them to use clean air shelters or leave area until AQ improves - Consider opening and publicizing clean air shelters for general population
Hazardous (>251 $\mu g/m^3$)	- Recommend shelter-in-place - Warn about medical risk for sensitive groups	- Recommend voluntary evacuation for sensitive groups. - Consider opening and publicizing clean air shelters for general population	- Recommend evacuation of sensitive groups. - Open and publicize clean air shelters for general population

Considerations that may influence implementation of the above mitigation strategies:

- Clear/predictable fluctuations in air quality throughout the day can allow for modifications in the recommendations from the above table. For example, schools could delay recess instead of canceling it if there is a pattern of clearing in the afternoon. For another example, if clean air shelters are provided, they should be open and available at the times of day that smoke is heaviest (i.e. may be at night).

- Schools may not be the only type of facility to consider for evaluation of indoor air quality in affected areas. For example, a community with care centers or group homes for the elderly should also consider assessing indoor air quality for these types of facilities when air quality is in the "Unhealthy" range for longer periods of time.

6. Oregon "Smoke Blog" website

As noted in Table 2 under website management, a major tool for providing the public with current air quality and health information on wildfires is the Oregon Smoke Blog. This blog site can provide timely "one-stop information" by including links to the various agency websites, and providing critical information on wildfire status, air quality conditions and forecasts, school and activity closures, burn bans, location of clean air shelters, and travel restrictions due to visibility. This blog would be activated by the US Forest Service, and managed by a team of state, federal, tribal and local agencies. The link to this blog site is http://oregonsmoke.blogspot.com/.

7. Annual Pre-Wildfire Season conference call

Each year prior to the summer wildfire season, in May or June, representatives from the agencies, organizations, or offices listed in this protocol will hold a conference call in preparation for the upcoming season. The purpose of this call would be to review the information in this protocol, discuss any specific preparation needs for the summer, and update the contact list of staff expected to be using this protocol if major wildfires occur. This contact list is provided in Appendix A.

8. Other references, resources, and links

Guidance document for public health officials

The smoke exposure levels listed above in Table 3 are adapted from the 2008 guidance document *Wildfire Smoke: A Guide for Public Health Officials*, and have been revised based on a review of evidence conducted in 2012 by members of the task force that developed this protocol. The document is currently used in many states as a reference guide for how public agencies can best protect public health during wildfire events. In addition to providing background information on the composition of smoke, potential health effects, and recommended actions, it contains specific strategies on how to reduce smoke exposure, such as indoor air filters and cleaners, use of masks and respirators, setting up clean air shelters, and examples of public service announcements for wildfire. This document is referenced here as general guidance to provide additional information, and like this protocol, is not intended to replace, interfere with, or limit any action taken by a public agency in the course of performing its official duties, nor does it represent a legally binding document.

Current active wildfire information. The Oregon Smoke Blog described above is intended to be a comprehensive wildfire website. If the blog is not yet activated, these individual links can provide current information on wildfire activity:

1. InciWeb (Incident Information System): www.inciweb.org/

2. Northwest Coordination Center (NWCC): www.nwccweb.us/index.aspx
3. Oregon Department of Forestry: http://wildfireoregondeptofforestry.blogspot.com/
4. US Forest Service fire map: http://activefiremaps.fs.fed.us/
5. National Weather Service smoke/air quality maps: http://airquality.weather.gov/
6. The AIRNow website: www.airnow.gov/
7. Oregon DEQ Air Quality: www.deq.state.or.us/aq/burning/wildfires/index.htm

Map of High Wildfire Risk Areas in Oregon. A map of the areas in Oregon that have a greater potential for major wildfire, prepared by the Oregon Department of Forestry, and can be found at this link: http://www.oregon.gov/ODF/RESOURCE_PLANNING/forestatlas/Communities_at_Risk_of_Wildfire_06032010.jpg. For other ODF fire risk maps: http://www.oregon.gov/odf/Pages/fire/fire.aspx#Significant_Fire_Potential

Materials on health effects of wildfire smoke. The Oregon Health Authority maintains fact sheets with general information about the health effects of wildfire smoke and strategies to minimize these effects: http://public.health.oregon.gov/Preparedness/Prepare/Pages/PrepareForWildfire.aspx

9. Appendices

Current Agency Contact List. Appendix A of this protocol is a contact list of representatives from the agencies and organizations identified in this protocol. Annual updating of this contact list will be necessary, and should be conducted at the annual pre-wildfire season conference call, as noted in #7.

Examples of Wildfire Smoke Public Announcements. Appendix B of this protocol provides examples of two DEQ public announcement/press releases from 2012, which can be used as a guide for future announcements.

Appendix A

Contact List
Wildfire Response Protocol
(as of 8/27/13)

CONTACT AGENCY OR ORGANIZATION	STAFF NAME and POSITION	CONTACT PHONE/EMAIL
1. US Forest Service	**Rick Graw**, *Pacific Northwest Region, Regional Air Resource Specialist* **Willie Begay**, *Pacific Northwest Region, Smoke Management Specialist* **Janice Peterson**, *Pacific Northwest Region, Forestry Sciences Lab, Washington Zone Coordinator*	(503) 808-2918 *rgraw@fs.fed.us* (503) 808-2390 *wbegay@fs.fed.us* (206) 732-7845 *jlpeterson@fs.fed.us*
2. Air Resource Advisor - National Coordinator	n/a (assigned when a major WF event occurs)	(202) 205-1084 *Pete.lahm@gmail.com*
3. Red Cross	n/a (depends on chapter and WF location)	n/a
4. Oregon Dept. of Environmental Quality	**Brian Finneran**, *DEQ Air Quality, Portland Headquarters* **Larry Calkins**, *DEQ Eastern Region, Pendleton Office* **Byron Peterson**, *DEQ Western Region, Medford Office* **William Knight**, *DEQ Public Affairs*	(503) 229-6278 *finneran.brian@deq.state.or.us* *(541) 278-4612* *calkins.larry@deq.state.or.us* (541) 776-6052 *peterson.byron@deq.state.or.us* (503) 229-5680 *Knight.william@deq.state.or.us*
5. Oregon Health Authority	**Kathleen Vidoloff**, *Emergency Risk Communications Officer, Health Security, Preparedness, and Response Program (HSPR)* **David Farrer**, *Public Health Toxicologist, Center for Health Protection.* **Richard Leman**, *Chief Medical Officer, HSPR* **Theresa Watts**, *Public Health Nurse, Preparedness Surveillance and Epidemiology Team* **Allan Visnick**, *Planner, HSPR*	(971) 673-1012 *kathleen.g.vidoloff@state.or.us* (971) 673-0971 *david.g.farrer@state.or.us* (971) 673-1089 *richard.f.leman@state.or.us* 971-673-1062 *theresa.m.watts@state.or.us* (503) 572-7658 *allan.d.visnick@state.or.us*

CONTACT AGENCY OR ORGANIZATION	STAFF NAME and POSITION	CONTACT PHONE/EMAIL
6. Oregon Military Department, Office of Emergency Management	**Dennis Sigrist**, *State Hazard Mitigation Officer* **Chuck Perino**, *Emergency Management Planner*	(503) 378-2911 x22247 *dennis.sigrist@oem.state.or.us* (503) 378-2911 x22252 *chuck.perino@oem.state.or.us*
7. Oregon OSHA	**Peg Munsell**, *Standards and Appeals Manager* **Penny Wolf-McCormick**, *Health Enforcement Manager*	(503)378-3272 *peggy.a.munsell@state.or.us* (503)229-5910 *penny.l.wolf-mccormick@state.or.us*
8. Oregon Dept. of Forestry	**Nick Yonker**, *Meteorology Manager* **Rod Nichols**, *Public Affairs*	(503) 945-7451 *nick.j.yonker@state.or.us* (503) 945-7425 *rod.l.nichols@state.or.us*
9. Governor's Office Regional Solutions Centers	**Annette Liebe**, *Central Oregon Coordinator - Crook, Deschutes, Hood River, Jefferson, and Klamath counties* ***Scott Fairley***, *Eastern Oregon Coordinator - Baker, Gilliam, Grant, Harney, Malheur, Morrow, Umatilla, Union, Wheeler, and Wallowa counties* **Jeff Griffin**, *Southern Oregon Coordinator - Coos, Curry, Douglas, Jackson, and Josephine counties* **Jamie Damon**, *South Valley Coordinator - Benton, Lane, Lincoln, and Linn counties*	(541) 610-7215 *annette.liebe@state.or.us* (541) 429-2120 *scott.g.fairley@state.or.us* (541) 601-0408 *jeff.griffin@state.or.us* (541) 346-8626 *jamie.damon@state.or.us*
10. Lane Regional Air Protection Agency	**Sally Markos**, Public Affairs Manager	(541) 736-1056 x217 *smarkos@lrapa.org*
11. County Health Departments	https://public.health.oregon.gov/PROVIDERPARTNERRESOURCES/LOCALHEALTHDEPARTMENTRESOURCES/Pages/lhd.aspx	
12. Tribal Government[1]	http://www.leg.state.or.us/cis/triubal_natural_resource_contact.pdf	

[1] The attached link identifies tribal natural resource contacts. May not be the actual contact for wildfire smoke and air quality issues.

Appendix B

Example 1 of Wildfire Smoke Public Announcement

News Release

For release: *date*
Contacts: *names, phone numbers*

[Agency name] Urges Oregonians to Protect Themselves from Wildfire Smoke

It's wildfire season in Oregon and smoke could be on the way. [Agency name] advises people to take precautions to protect themselves from unhealthy smoke levels.

Wildfire season is underway with *[xx wildfires]* currently burning in the state. Under certain weather conditions smoke from these fires can drift into communities and quickly cause unhealthy air quality. Should smoke events occur, *[agency name]* and health officials urge local residents to take the following precautions to avoid breathing problems or other symptoms from smoke:

- Be aware of smoke concentrations in your area and avoid the places with highest concentrations.
- Avoid smoke either by leaving the area or protecting yourself by staying indoors, closing all windows and doors and using a filter in your. heating/cooling system that removes very fine particulate matter
- Avoid strenuous outdoor activity in smoky conditions.
- People suffering from asthma or other respiratory problems should follow their breathing management plans or contact their healthcare providers.

Remember, local smoke levels can rise and fall rapidly, depending on weather factors including wind direction. People can conduct a visual assessment of smoke levels to quickly get a sense of air quality levels and take precautions. If people have additional concerns, they should contact the nearest regional or local public health agency for the latest in health conditions from smoke.

For more information about local conditions:

- Visit the Oregon Smoke Blog for more information regarding active fires and air quality, along with tools to help people assess smoke levels in their area.
- Tune to local radio and TV stations and the Weather Channel in affected areas that may include the very latest fire information in news programming and weather reports.
- Obtain a dedicated NOAA Weather Radio receiver, which will alert you 24 hours a day to hazards in your area.

Appendix B

Example 2 of Wildfire Smoke Public Announcement

News Release

For release: *date*
Contacts: *names, phone numbers*

Smoke From *[wildfire name]* Creates Hazardous Air Quality

Calm winds and a temperature inversion caused smoke concentrations to reach hazardous levels between 4 a.m. and 8 a.m. today. Conditions improved as daytime temperatures increased, but very smoky conditions could return early Wednesday morning.

The *[wildfire]*, *xx* miles from *[location/city]* sent dense smoke into the town in the early morning hours today. Calm conditions and a temperature inversion caused smoke from the fire to settle in at ground level between 3 a.m. and 9 a.m. Smoke concentrations at the air quality monitor in *[city]* reached hazardous levels during this time.

[Agency name] urges everyone to avoid outdoor exertion during such conditions. People with respiratory or heart disease, the elderly and children should remain indoors.

The National Weather Service predicts that calm conditions, a high pressure system and nighttime temperature inversions could cause very smoky mornings through Saturday. Conditions are expected to improve as daytime temperatures rise and the smoke lifts away from ground level.

However, under certain weather conditions wildfire smoke can drift into communities and quickly cause unhealthy air quality. Should additional smoke events occur, *[agency name]* and health officials urge local residents to take the following precautions to avoid breathing problems or other symptoms from smoke:

- Be aware of smoke concentrations in your area.
- Avoid smoke by staying indoors, closing all windows and doors and using a filter in a heating/cooling system that removes very fine particulate matter. If possible, avoid smoky areas.
- Avoid strenuous outdoor activity including sports practice, work and recreation.
- People with concerns about health issues, including those suffering from asthma or other respiratory problems should follow their breathing management plans or contact their healthcare providers.

Remember, local smoke levels can rise and fall rapidly, depending on weather factors including wind direction. People can conduct a visual assessment of smoke levels to quickly get a sense of air quality levels and take precautions. If people have additional concerns, they should contact the nearest regional or local public health agency for the latest in health conditions from smoke.

For more information about local conditions:

- Visit the Oregon Smoke Blog for more information regarding active fires and air quality, along with tools to help people assess smoke levels in their area.
- Tune to local radio and TV stations and the Weather Channel in affected areas that may include the very latest fire information in news programming and weather reports.
- Obtain a dedicated NOAA Weather Radio receiver, which will alert you 24 hours a day to hazards in your area.