PENNSYLVANIA PRESCRIBED FIRE STANDARDS

Introduction

The purpose of this guide is to provide standards, establish common terminology and definitions, and identify planning and implementation procedures for the use of prescribed fire in Pennsylvania.

These standards specify what is minimally acceptable for prescribed fire planning and implementation. Organizations may choose to establish additional standards and policy direction, but they must adhere to, and cannot modify, these minimums.

Prescribed Fire Program Goals

Pennsylvania's prescribed fire program goals are to:

1. Provide for firefighter and public safety as the first priority.

2. Ensure that risk management is incorporated into all prescribed fire activities.

3. Use prescribed fire in a safe, carefully planned manner.

4. Utilize prescribed fire to achieve specific fire and natural resource management objectives.

Authorities

Prescribed fire in Pennsylvania is authorized by the Pennsylvania Prescribed Burning Practices Act (Act 17 of 2009). All prescribed fires conducted in Pennsylvania must be performed in accordance with this act and these standards.

This guide was developed by the Pennsylvania Bureau of Forestry and the Pennsylvania Prescribed Fire Council, Training and Standards Committee.

2016 revisions are in red

Notifications

Two separate notifications are required by Pennsylvania Prescribed Burning Practices Act:

1) Notification of the Pennsylvania Department of Environmental Protection

Written notification of the intent to conduct a prescribed fire, including *two copies* of the first two pages of the attached burn plan must be sent, emailed, or faxed to the Pennsylvania Department of Environmental Protection. One copy to DEP, Bureau of Air Quality, Division of Compliance & Enforcement, 400 Market Street, Harrisburg, PA 17101, Fax (717) 772-2303, and one copy to the appropriate regional office (Appendix I) at least 25 working days prior to the earliest possible date that a burn could occur.

The appropriate DEP regional office must be notified within 24 hours prior to a prescribed fire. The phone numbers for each office are listed in Appendix I.

2) Notification of the Pennsylvania Department of Conservation and Natural Resources

Written notification of the intent to conduct a prescribed fire, including *three copies* of the burn plan must be sent or emailed to the Pennsylvania Department of Conservation and Natural Resources, Division of Forest Fire Protection, Attn: Chief Forest Fire Warden, P.O. Box 8552, Harrisburg, PA 17105-8552 at least 25 working days prior to the earliest possible date that a burn could occur. The current email address for plans will be given out at the Pennsylvania Prescribed Fire Council Annual Meeting each February.

Written notification must again be made to the Chief Forest Fire Warden no more than 5 working days after the prescribed fire has been completed. This notification must include the date(s) that the fire occurred, RX Fire number, county, township and final acreage.

Prescribed Fire Qualifications and Organization

Pennsylvania Qualifications

All personnel who participate in prescribed burning in Pennsylvania must be qualified for their assigned position. The minimum qualification standards are listed in the Pennsylvania Prescribed Fire Qualification Standards (Appendix B). These standards will apply only to prescribed fires conducted within the state. Organizations will be responsible for qualifying and tracking the training and experience of their own personnel. Thorough documentation will be necessary in order to provide individuals with the protection provided by legislation.

Qualifications are obtained through a combination of training and experience. Experience is measured by completing a position-specific task book that is evaluated by a fully qualified evaluator and also by meeting the minimum prerequisite operational period experience required for each position. Completed task books then need to be certified by the organization. Currency of qualifications will be maintained by acting in the subject capacity at least once every 5 years. In this manner, currency will also be maintained in each lower position. Trainees may participate on the scene only under the direct supervision of a qualified evaluator and the trainee must be fully qualified at the next lower level.

Organizations who are members of the Pennsylvania Prescribed Fire Council Steering Committee may grandfather their personnel in accordance with the Grandfathering Standards (Appendix D).

Individuals who fail to meet the responsibilities of their qualified position may have their qualifications revoked by their organization.

National Qualifications

Individuals who are qualified at a position(s) according to the National Wildfire Coordinating Group (NWCG) Wildland and Prescribed Fire Qualifications System Guide (PMS-310-1) standards will also be considered as qualified at the corresponding position(s) in Pennsylvania.

Organization

All member organizations of the Pennsylvania Prescribed Fire Council Steering Committee agree to accept each other's qualifications; provided that they meet the Pennsylvania Prescribed Fire Qualification Standards or the NWCG 310-1 Standards. The organizational structure that is outlined in the approved Prescribed Fire Plan must be used and staffed with qualified individuals for the implementation of the prescribed fire.

The complexity of each prescribed fire will dictate the organizational structure that is needed to safely achieve the objectives that are specified in the prescribed fire plan. All prescribed fire plans must, at a minimum, identify the following positions, how they will be staffed, and how they will fit into the organization:

- Agency Administrator (AA)
- Burn Boss (RXB1, RXB2 or RXB3 as appropriate)
- Holding Specialist
- Firing Boss (FIRB)

On low-complexity burns, the Burn Boss may assume the duties of the Holding Specialist and/or the Firing Boss. If this is the case, it must be outlined in the Prescribed Fire Plan.

Minimum Burn Boss qualifications required to implement the plan will be determined by analyzing the complexity of each prescribed fire. Complexity is determined by using the Pennsylvania Prescribed Fire Complexity Rating Worksheet (Appendix H). The NWCG Prescribed Fire Complexity Rating System Guide is also acceptable. Resources will be assigned based on the following chart:

	Complexity Rating		
Position	**High**	**Moderate**	**Low**
RXB1	Required	Optional	Optional
RXB2	Not Allowed	Required	Optional
RXB3	Not Allowed	Not Allowed	Required
FIRB	Required	Required	Optional
Holding Specialist	Holding functions should be managed by someone who is qualified at the appropriate ICS wildland fire operations position. On low complexity projects, the holding duties may be assigned to the Burn Boss.		

<u>Responsibilities</u>

Thorough planning and review processes are required prior to implementation. All prescribed fire activities should be based on natural resource and fire management objectives.

Agency Administrator

The Agency Administrator is the individual who is the managing officer of an agency, division thereof, or jurisdiction having responsibility for incident mitigation and management. Examples: Park Superintendent, District Forest Fire Warden, USFS Forest Supervisor, FWS Refuge Manager, Fire Chief. On private lands, the Agency Administrator will be the landowner. Individual organizations will need to designate who their accepted Agency Administrator(s) will be.

The Agency Administrator has final approval authority for all Prescribed Fire Plans. The Prescribed Fire Plan is a contract between the Burn Boss and the Agency Administrator. Once the Prescribed Fire Plan is approved, the Agency Administrator is authorizing the Burn Boss to implement the burn. It then becomes the responsibility of the Burn Boss to ensure that all prescription, staffing, equipment, and other plan specifications are met before, during and after the burn.

The Agency Administrator is responsible to:

1. Approve Prescribed Fire Plans. When approving the plan, understand the risks that are associated with it. Ensure that the objectives within the plan are consistent with natural resource or fire management objectives.

2. Ensure that fully qualified personnel are available to implement the burn plan, assign a fully qualified burn boss, and ensure that only trained and qualified personnel participate in the implementation of the prescribed fire.
3. Ensure that projects are monitored, evaluated and documented.
4. Ensure that the proper notifications are made to cooperators, partners and/or local emergency management agencies.
5. Allow the Prescribed Fire Burn Boss to have tactical control of the Prescribed Burn.
6. Ensure that all prescribed fires are conducted in accordance with the approved prescribed fire plan and established standards and guidelines.
7. Report all wildfires resulting from prescribed fires to the Pennsylvania Bureau of Forestry.
8. Ensure that written notifications are completed in a timely manner as outlined in the "Notifications" section of these standards.

Prescribed Fire Burn Boss

The Prescribed Fire Burn Boss is responsible to the Agency Administrator. They are responsible to insure that the prescribed fire is implemented as outlined in the prescribed fire plan.

The Prescribed Fire Burn Boss is responsible to:

1. Review the Prescribed Fire Plan prior to implementation to ensure that all necessary elements and objectives are addressed.
2. Inspect the prescribed fire area to ensure that the plan addresses all areas of special concern and that the expected fire behavior will be within the capabilities of the holding and contingency plan.
3. Evaluate the proposed ignition plan to ensure that it will meet the objectives.
4. Obtain current weather and smoke forecasts, updates and advisories from accepted fire weather forecasters.
5. Maintain communication with the Agency Administrator.
6. Complete and sign the Prescribed Fire GO/NO-GO Checklist (See Appendix B).
7. Confirm the availability of the contingency resources specified in the Prescribed Fire Plan.
8. Ensure that all operations are conducted in a safe manner and in accordance with the approved plan and established standards and guidelines.
9. Verify the qualifications of assigned personnel.
10. Conduct a personnel/safety briefing to ensure a safe operation.
11. Conduct the test fire and document results.
12. Exercise tactical control by supervising assigned personnel and directing the ignition, holding and monitoring operations, including mop-up and patrol.
13. Ensure that weather conditions and fire behavior are being monitored and documented.
14. Declare the prescribed fire out per organization specific standards.

15. Determine when the prescribed fire is not within prescription parameters or is not meeting the plan objectives, and initiate the necessary contingency action.
16. Declare an escaped prescribed fire a wildfire, as defined by these standards.
17. Manage the suppression of the wildfire or oversee the transition to another Incident Commander if an escape occurs.
18. Ensure that reports are completed.
19. Coordinate with adjacent landowners and cooperators as designated in the Prescribed Fire Plan.

Holding Specialist

The supervisory position in charge of the holding forces reports to the Prescribed Fire Burn Boss. There is no specific position in the Pennsylvania Prescribed Fire Qualification Standards for this function, but the position should be staffed with someone who is qualified at the appropriate Incident Command System position. The complexity of the holding organization, contained in the Prescribed Fire Plan, will determine the appropriate position designation. The level of staffing should take into consideration assigned resources and span of control.

The Holding Specialist is responsible to:

1. Review the Prescribed Fire Plan and the prescribed fire area prior to implementation, preferably with both the Burn Boss and the Firing Boss.
2. Brief holding personnel on project objectives and holding operations.
3. Conduct holding operations in a safe manner according to the holding plan.
4. Provide for the safety and welfare of assigned resources.
5. Coordinate holding operations with the Firing Boss.
6. Confine the fire to a predetermined area as outlined in the Prescribed Fire Plan, including mop-up and patrol.
7. Maintain communication with the Burn Boss on holding progress and/or problems.

Firing Boss

The Firing Boss reports to the Prescribed Fire Burn Boss and is responsible for supervising and directing ignition operations according to established standards in the Prescribed Fire Plan.

The Firing Boss is responsible to:

1. Review the Prescribed Fire Plan and the burn unit prior to implementation.
2. Brief personnel on project objectives and ignition operations.
3. Complete the test fire according to the ignition plan at the directions of the Prescribed Fire Burn Boss.
4. Conduct ignition operations in a safe manner according to the ignition plan.

5. Identify the impacts of ignition on the holding operation and the desired fire effects.
6. Coordinate ignition operations with the holding specialist.
7. Ensure that only those personnel designated as members of the firing team actually perform the ignition.

Safety

Within all wildfire operations, firefighter and public safety are the first priority. Prescribed Fire Plans must also reflect this commitment. Every person involved in a prescribed fire is responsible for identifying safety issues and concerns. It is the responsibility of each individual participating in prescribed fire activities to notify their supervisor of any possible misunderstanding of assigned tasks or concerns related to an assignment.

All personnel assigned to the prescribed fire must be equipped with personal protective equipment meeting established agency standards.

Ignition operations must be halted when weather conditions are not within the parameters outlined in the prescribed fire plan, unless the ignition operations are deemed essential by the Burn Boss for immediate safety or control measures. Ignition operations may only be performed by those individuals designated by the burn boss and the burn boss must authorize all changes to the planned firing operation.

Exposure to smoke during prescribed fire operations can be a significant safety concern. Experience has shown that exposure to smoke on prescribed fires, especially for holding forces, often exceeds that on wildfires. Public safety impacts from smoke should be addressed in the Smoke Management Element of the Prescribed Fire Plan.

The risk management process identified in the NWCG Incident Response Pocket Guide (IRPG, PMS 410-1) helps ensure that critical factors and risks associated with prescribed fire operations are considered during decision making. This process is the standard that should be applied to all prescribed fire planning and operations. Consider using a Safety Officer on highly complex or highly hazardous burns.

Escaped Prescribed Fires

A prescribed fire must be declared a wildfire when it has spread outside the prescribed fire boundary, as identified in the prescribed fire plan, or is likely to do so, and cannot be contained by the resources on hand and the specified contingency resources. Due to the nature of prescribed fire activities, some fire outside of control lines may be expected. Quick and decisive action on the part of the Burn Boss and/or the Holding Specialist will usually mitigate any potential problems. Specific management action points will be specified in the Prescribed Fire Plan.

In the event that the fire escapes the prescribed fire area and it overwhelms both the resources on hand and the contingency resources, the Burn Boss must declare the prescribed fire a wildfire. The Burn Boss may then become the Incident Commander of the suppression organization, or transfer command to another qualified Incident Commander. These details must be specified in the Prescribed Fire Plan.

The District Forest Fire Warden having jurisdiction must be notified of all wildfires that resulted from prescribed fires.

After Action Review (AAR)

Each operational shift on a prescribed burn should have an informal After Action Review (AAR). The questions to answer in conducting an AAR are:

1. What did we set out to do?
2. What actually happened?
3. Why did it happen that way?
4. What should be sustained?
5. What can be improved?

Prescribed fires that were converted to a wildfire should receive a formal AAR. Organizations should determine what constitutes a "formal" AAR. The goal of any AAR should be to guide future prescribed fires and policies to minimize future resource damage or threats to life and property. Other objectives are to determine if overall policy, guidance and procedures relating to prescribed fire operations are adequate.

Documentation

All prescribed fires must have a project file that will be maintained in the agency office. This documentation should be retained for a minimum of two years after the fire has been completed. The file will contain the following information:

1. Prescribed Fire Plan – original, signed copy.
2. Monitoring data including, weather, fire behavior, fire effects, and smoke effects.
3. Appropriate weather forecasts.
4. Spot weather forecast requests and responses.
5. Completed GO/NO-GO checklist.
6. Any completed Unit Logs (ICS-214 or equivalent).

Optional information that may be included, but is not limited to:

1. After Action Review notes.
2. Incident Action Plan.
3. Press Releases, media inquires.
4. Post Burn reports, documentation, etc.

Prescribed Fire Plan

The Prescribed Fire Plan is the site-specific implementation document. It serves as a contract between the Agency Administrator and the Burn Boss. By signing the cover page, the Agency Administrator approves of the plan and agrees to allow the Burn Boss to implement the plan. The Burn Boss' signature guarantees that the prescribed fire will only be conducted within the scope of the plan. The plan includes all of the information needed to implement the prescribed fire. The size and complexity of each prescribed fire will determine the level of detail that is required in the fire plan. Prescribed fires must be implemented in compliance with the written plan. A thorough and well-written plan is essential to the success of any prescribed fire.

Shelf life of a Plan

A plan is effective for three years from the date of the last approval signature on the cover page, or when the project has been completed, whichever comes first, as long as no changes have been made to the plan or have occurred to the unit. However, a burn boss must review and sign the plan each year.

The same burn plan can be used for repeated treatments in the project area during the three-year life span of a plan for **grass fuel models only.** It must be stated on the cover page that the plan will be used for multiple treatments.

Amendments to the Prescribed Fire Plan

There may be a need to make amendments to the Prescribed Fire Plan. These are changes to the Prescribed Fire Plan that require Agency Administrator signature. When changes are necessary, plans must be amended to identify the affected sections; the reason for the change(s); and have the changes clearly identified. For amendments, the same standards for Prescribed Fire Plan preparation, review, and approval apply. Common reasons for amending the Prescribed Fire Plan may include, but are not limited to:

- Changes to objectives.
- Changes to complexity.
- Changes to fire behavior prescription parameters.
- Changes to prescribed fire area boundaries resulting in either an increase or decrease in area.
- Reduction in resource capabilities identified as required in the plan.
- Major changes to ignition methods.

To avoid having to amend the Prescribed Fire Plan, flexibility should be built into the plan that will allow for a range of adjustments during the prescribed fire. Examples of flexibility that can be built into a prescribed fire plan:

• The Prescribed Fire Plan may state that on burn day and subsequent days of the prescribed fire, a mix of the number and kinds of hand crews and engines may be modified as long as stated production capabilities are not compromised.

• Minor changes in the prescribed fire area boundaries to facilitate holding and/or ignition requires no change in holding or ignition resources and is within the project boundaries.

• Additional resources may be assigned to the project without amending the burn plan if the addition of these resources does not change the complexity of the burn or require additional supervisory positions. These changes must be discussed at the briefing.

Required Elements of All Prescribed Fire Plans

The template in this document lists the minimum amount of information that must be included in a plan for all prescribed fires conducted in Pennsylvania. Other formats may be used as long as they contain the 24 required elements listed here. If a specific element of the plan does not apply to a specific fire, simply write not applicable (N/A) in the blank. Any additional information such as maps, diagrams, etc., should be added as appendices to the plan.

Cover Page

At least three dated signatures must appear on the front cover: a plan preparer, the Burn Boss, and the Agency Administrator. Burn day contact information (name and number) should be included on the cover page. If the plan covers repeated treatments in the project area over the 3-year lifespan, it should be stated on the cover page. The plan expiration date or something similar to the example plan on page 17 will be included on the cover page. If the plan needs to be amended, the signed and dated amendments must be attached to the Prescribed Fire Plan.

Element 1 – Location

Include information on the location of the burn including ownership, forest district, township, county, etc.

Element 2 – Prescribed Fire Area Description

A. Prescribed Fire Area Narrative Description – Include a written description of the prescribed fire area, topography, fuels in the area, and the fuels surrounding the burn area. A definitive description of the prescribed fire boundaries must be included. This is the area where the fire will be ignited and allowed to burn. A short history of the project and related treatments should also be included. The prescribed fire area may be divided into smaller units, per organizational standards.

B. Prescribed Fire Area Description Table – For each vegetation type in the prescribed fire area, an entry should be made on the table.

C. Maps – At a minimum, a location map and a burn unit map must be included. Other maps may be included if deemed appropriate. These maps should be attached to the end of the plan. Maps should show prominent features in the area, topography, water sources etc. The prescribed fire boundaries must be shown on the map.

Element 3 – Prescribed Fire Justification

A. General Goals – Check all that apply, if the appropriate choice is not listed, please indicate the other goals.

B. Prescribed Fire Management Goals – Include a written description on the management goals of the project. Also, describe how they will fit in with natural resource or fire management goals for the area.

C. Specific, Measurable Prescribed Fire Objectives – Describe in clear, concise statements the specific, measurable resource and fire objectives for this prescribed fire. Objectives must be measurable and quantifiable so that prescription elements can be developed and so that the success of the project can be determined.

D. Other Alternatives Considered – Describe the other alternatives to achieve the management goals you considered and the rationale for your decision.

Element 4 - Fuel and Weather Prescription

Give an acceptable range for each parameter. At a minimum, the parameters indicated must include Air Temperature, Relative Humidity, 20-Foot Wind Speed, Wind Direction, and 1-Hour Fuel Moisture.

The selection of the parameter ranges should be based on the conditions necessary to achieve the desired results in a safe and effective manner.

Element 5 – Fire Behavior Prescription

Give an acceptable range for each parameter. At a minimum, include parameters for Rate of Spread, Flame Length, and Probability of Ignition for each fuel type in the prescribed fire area.

This information should be used to determine which combinations of elements in the Fuel and Weather Prescription will result in unacceptable fire behavior. In many cases, burning under the extremes of all the Fuel and Weather Prescription parameters will not meet, and will most likely exceed, the Fire Behavior Prescription. Conditions must be in

the “Acceptable” range indicated for both the Fuel and Weather Prescription and the Fire Behavior Prescription in order for the Prescribed Fire to be considered to be in prescription.

Holding and contingency plans must be developed with the consideration of the predicted fire outside of the prescribed fire area. Fire behavior characteristics for fuel models will be derived from the worst-case prescription parameters and the most extreme environmental conditions that exist on-site.

Element 6 – Fire Behavior Narrative

A narrative that summarizes fire behavior and the parameters effecting it must be included. Fire behavior modeling and or empirical evidence that supports the expected parameters should be added as an Attachment to the Prescribed Fire Plan. Also, describe the desired fire behavior and how fire behavior will be manipulated to meet resource objectives. This narrative should be correlated with Element 13, Firing Plan.

Element 7 – Scheduling

Describe the timing of when the prescribed fire needs to be completed. Consider time of year, time of day, season, etc. Also, discuss how the burn may effect the availability of wildfire suppression resources in the area.

Element 8 – ICS Organization Chart

Insert an ICS Organization Chart here that illustrates the Prescribed Fire Organization or include it as an Attachment to the Plan.

The complexity of each prescribed fire determines the organization capabilities needed to safely achieve the objectives that are specified in the plan. A Prescribed Fire Burn Boss must be assigned to every prescribed fire. Standard ICS fire management principles will be followed.

Element 9 – Assigned Resources & Equipment

List all of the required resources that will be assigned to the burn and any specialized equipment that will be needed to accomplish the Prescribed Fire goals and objectives.

Element 10 – Pre-Burn Considerations

Describe the on and off-site actions that need to be conducted prior to implementation. Examples include, but are not limited to: line to be constructed, preparation of critical holding points, snags to be felled, weather monitoring, timeframes and other responsibilities.
Methods and procedures for obtaining weather and smoke management forecasts should be detailed here. Spot weather forecasts are strongly recommended.

Element 11 – Test Fire

Provisions for a test fire are required and all results must be recorded. The purpose of a test fire is to verify that the prescribed fire behavior characteristics will meet management objectives and to verify smoke dispersal. In many situations, an analysis of the initial ignitions may provide adequate test fire results.

A. Planned Location – Describe the part of the unit in which the test fire will occur. Include information on the procedures for igniting the test fire and how the results of the test fire will be evaluated. Test fires should be ignited in an area that is representative of the condition of the prescribed fire area.

B. Test Fire Documentation – Results of the test fire should be observed and then documented in the Prescribed Fire Plan. This is important to establish a starting point for fire behavior observations and to document that the exhibited fire behavior was within the parameters established in the Fire Behavior Prescription. Also, make note of the weather conditions and compare them to the Fuel and Weather Prescription parameters to ensure that they are being met.

Element 12 – Firing Plan

Describe planned ignition operations including firing methods, devices, techniques, sequences, patterns and staffing. Maps showing proposed ignition patterns may be included as an Attachment to the Prescribed Fire Plan. The appropriate firing plan will ensure that the plan objectives are met.

Element 13 – Holding Plan

Describe the procedures that will be used to contain the fire within the prescribed fire area boundaries that were established in Element 2. This element should also detail mop-up and patrol procedures. Describe any critical holding points and indicate them on the map. Include minimum staffing levels and capabilities for the holding organization.

Element 14 – Monitoring

Monitoring is required to ensure that the prescribed fire is meeting the objectives specified in the plan. Describe the monitoring that will be required and who will collect this information. At a minimum, weather, fire behavior, fuel conditions and smoke dispersal must be monitored once every 60 minutes during ignition operations.

Element 15 – Communication Plan

Develop a Communication Plan that is specific to the project. Identify and assign command, tactical, air operations frequencies, and any repeaters that may be needed. This may be covered in an Incident Action Plan on the form ICS-205.

Element 16 – Contingency Plan

The contingency plan is the portion of the Prescribed Fire Plan that considers possible but unlikely events and the contingency resources and actions needed to mitigate those events. At a minimum, a contingency plan must be developed to cover escaped fires and danger to the public from fire and smoke.

A. Management action points –Management action points need to be established and followed for each scenario that may result in an escaped prescribed fire or danger to the public from fire and smoke. Management action points units will indicate when certain actions or additional suppression resources are needed. They should be based things like weather and/or fuel conditions, fire behavior, or resistance to control.

B. Actions Needed – Describe the actions needed for each management action point. The Agency Administrator must determine when they need to be notified depending on what actions are being taken.

C. Contingency Resources and Reporting Times – List the contingency resources that will be needed for the actions listed above. Verify and document the availability and response times of the contingency resources on the day of the prescribed fire. Resources that have an indeterminate availability are not valid contingency resources.

D. Wildfire Conversion –Any prescribed fire that escapes the prescribed fire area boundaries that are established in Element #2, and cannot be controlled by the resources on hand and the specified contingency resources, must be declared a wildfire. Once this conversion has been made, immediate actions must be taken to suppress the wildfire. These actions will be listed in Element 16, Part B., above. This section should also define the ICS structure that will be used for suppression.

Element 17 – Sources of Emergency Assistance

List all pertinent sources of emergency assistance and their contact numbers such as the Volunteer Fire Department covering the area, the District Forest Fire Warden, local Forest Fire Wardens and Crews.

Element 18 – Safety and Medical Plan

Develop a Medical Plan that is specific to the project. Identify resources such as ambulances, hospitals etc. that will be used in the event of a medical emergency. Also list procedures for reporting and responding to medical emergencies and make them known to personnel assigned to the project. This may be part of an Incident Action Plan and included on ICS form 206.

Element 19 – Smoke Management Plan

List and describe any smoke sensitive areas that may be affected by the project, taking into account not only the day of the project, but also on the following days. Also, describe desirable smoke behavior and smoke management actions.

No burning will be conducted in an area covered by an Air Quality Index (AQI) forecast when the forecast is 101 or above. Below 101 corresponds to an air quality action day code of green and yellow. The Air Quality Index Forecast is only available in certain counties and usually available May through September (Appendix I). The forecast can be found by contacting the regional DEP office or at:
http://www.airnow.gov/index.cfm?action=airnow.fcsummary&stateid=45

Element 20 – Notifications

List all of the names and contact information for the notifications that must be made. Examples include, but are not limited to: adjoining landowners, DEP Regional Office, county EMA offices, and local fire departments. The District Forest Fire Warden (or designee) must be notified on the day of the burn prior to ignition and also after the burn has been completed. Keep careful records of all notifications.

Element 21 – Evaluation

Complete an evaluation immediately after the burn and also list any future monitoring that is planned.

Element 22 – Go/No-Go Checklist (Appendix B)

The NWCG Go/No-Go Checklist must be completed and signed by the Burn Boss on the day of the burn.

Element 23 – Pennsylvania Prescribed Fire Complexity Rating Worksheet (Appendix H)

Element 24 – List of Attachments to the Prescribed Fire Plan

List of Appendicies to the Standards

Appendix A – Prescribed Fire Plan Template
Appendix B – NWCG Go/No Go Checklist
Appendix C – Pennsylvania Prescribed Fire Qualifications Standards
Appendix D – Grandfathering Standards
Appendix E – Pennsylvania Wildfire & Prescribed Fire Experience Log
Appendix F – Pennsylvania Bureau of Forestry Districts Map
Appendix G – Pennsylvania Bureau of Forestry – District Forest Fire Wardens
Appendix H – Pennsylvania Prescribed Fire Complexity Rating Worksheet
Appendix I – DEP Regional Offices (by county)

Appendix A

PENNSYLVANIA
PRESCRIBED FIRE PLAN

Prescribed Fire Name:_____

Agency:_____

Prepared by:
Name: _____ _____
Title: *Signature* *Date*

Burn Boss:
Name: _____ _____
Title: *Signature* *Date*

Agency Administrator:
Name: _____ _____
Title: *Signature* *Date*

Burn Day Contact Information:
Name:
Phone:

Plan expires 3 years from the date of the latest approval signature**,** or when the project has been completed. Whichever comes first.

1. **LOCATION:**

Agency /Organization		Ownership	
County		Township	
Acres		Landscape	
Lat/Long		Forest District	

2. **PRESCRIBED FIRE AREA DESCRIPTION:**

A). Prescribed Fire Area Narrative Description (include description of fire unit boundaries):

B). Prescribed Fire Area Description Table :

Vegetation Types	Fire Behavior Fuel Model	% of Unit Area	% Slope	Aspect

C). MAPS (include as attachments):

Location map (public use or state highway):
Burn unit map (topo and/or photo map):
Timber type map: (optional)
Aerial photograph:
Soils Map: (optional)
Smoke Screening Map:
Other:

3. PRESCRIBED FIRE JUSTIFICATION:

General Goals:

	Fuel Reduction		Site Preparation		Wildlife Habitat
	Competing Vegetation Control		Invasive Species Control		Other
	Insect & Disease				

Prescribed Fire Management Goal(s):

Specific Measurable Prescribed Fire Management Objectives:

Other Alternatives Considered:

4. FUEL AND WEATHER PRESCRIPTION (give ranges):

Parameters:	**Acceptable (Required)**	
	Min.	**Max.**
*Air Temperature (ºF)		
*Relative Humidity (%)		
Days Since Last Rain		
20 ft wind speed (mph)		
*Wind Direction(s)		
*Eye-level Windspeed (mph)		
*1-Hour Fuel Moisture (%)		
10-Hour Fuel Moisture (%)		
100-Hour Fuel Moisture (%)		
1000-Hour Fuel Moisture (%)		
Atmospheric Mixing Height (ft)		
Other (e.g. KBDI, Live/dead ratio):		
Live Fuel Moisture (%)		

* Required

5. FIRE BEHAVIOR PRESCRIPTION (give ranges, add parameters for each fuel model as required):

Fuel Model	**Parameters:**	**Acceptable (Required)**	
		Min.	**Max.**
	*Rate of Spread		
	*Flame Length		
	*Probability of Ignition		
	*Rate of Spread		
	*Flame Length		
	*Probability of Ignition		
	*Rate of Spread		
	*Flame Length		
	*Probability of Ignition		

*****Required

6. FIRE BEHAVIOR NARRATIVE (Describe *desired* fire behavior. How will you manipulate fire behavior to meet management and control objectives?):

7. SCHEDULING (Describe timing, time constraints)

8. ICS ORGANIZATIONAL CHART :

9. ASSIGNED RESOURCES:

10. PRE-BURN CONSIDERATIONS:

11. TEST FIRE:

A). Planned Location:

B). Test Fire Documentation:

1). Weather Conditions:

2). Test Fire Results:

12. FIRING PLAN:

13. HOLDING PLAN:

14. MONITORING:

15. COMMUNICATION PLAN:

16. CONTINGENCY PLAN:

A). Management action points:

B). Actions Needed:

C). Resources and Reporting Times:

D). Wildfire Conversion:

10. SOURCES OF EMERGENCY ASSISTANCE (location & phone #):

Fire:		
Law Enforcement:		
Medical:		
District Forest Fire Warden:		

18. SAFETY & MEDICAL PLAN:

19. SMOKE MANAGEMENT PLAN

20. NOTIFICATIONS (including, but not limited to):

Department of Environmental Protection:
Airports:
District Forest Fire Warden:
Neighboring Landowners: (If within a certain distance)
County Communications Center:
Volunteer Fire Dept. having jurisdiction:

21. EVALUATION:

22. GO/NO-GO CHECKLIST:

23. COMPLETED COMPLEXITY ANALYSIS AND JUSTIFICATION:

24. LIST OF ATTACHMENTS:

Summary and Evaluation Immediately After Burn:

Date burned		Time frame		
Rain		Days since		Inches of rain
Acres burned		Est. Cost		
Burn Boss				
Containment Problems				
Smoke Problems				
Est. Understory Consumed (%)				
Excessive Scorch				
Remarks				

Appendix B

NWCG PRESCRIBED FIRE GO/NO-GO CHECKLIST

Yes	No	Questions
		Are ALL fire prescription elements met?
		Are ALL smoke management specifications met?
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel and equipment on-site, available, and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignment, safety hazards, escape routes, and safety zones?
		Have all the pre-burn considerations identified in the prescribed fire plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the prescribed fire plan and will it meet the planed objective?

If all the questions were answered "YES" proceed with the test fire. Document the current conditions, locations, and results.

Burn Boss:_____

Date:_____

Appendix C

Pennsylvania Prescribed Fire Qualifications Standards

Position	Required Training*	Required Taskbook	Minimum Prerequisite Operational Period Experience
Pennsylvania Prescribed Fire Burn Boss 1 – PA-RXB1	S-490 Advanced Fire Behavior Calculations RX-410 Smoke Management Techniques	Prescribed Fire Burn Boss 1 – PA-RXB1	5 as RXB1(T) 5 as RXB2
Pennsylvania Prescribed Fire Burn Boss 2 – PA-RXB2	S-390 Intro to Fire Behavior Calculations RX-301 Prescribed Fire Implementation RX-341 Prescribed Fire Plan Preparation RX-310 Introduction to Fire Effects S-200 Initial Attack Incident Commander	Prescribed Fire Burn Boss 2 – PA-RXB2	5 as RXB2(T) 5 as FIRB
Pennsylvania Prescribed Fire Burn Boss 3 – PA-RXB3**	N/A	PA-RXB3	5 as RXB3(T) 5 as FIRB
Pennsylvania Firing Boss – PA-FIRB	S-234 Ignition Operations OR S-219 Firing Operations S-230 Crew Boss S-290 Intermediate Fire Behavior ICS-200 Basic ICS	Firing Boss – PA-FIRB	5 as FIRB(T) 3 as FFT1
Pennsylvania Squad Boss – PA-FFT1	S-131 Squad Boss S-133 Look Up, Look Down, Look Around	Squad Boss – PA-FFT1	5 as FFT1(T) 3 as FFT2
Pennsylvania Firefighter – PA-FFT2	PA-130 Basic Firefighter (or S-130) IS-700 National Incident Management System (NIMS) ICS-100 Introduction to ICS S-190 Basic Fire Behavior	N/A	N/A

*All courses must meet NWCG standards except for PA-130.
** RXB3 is optional and not required to move into higher positions.

Appendix D

Grandfathering Standards

The grandfathering period has expired and organizations may no longer grandfather any of their personnel. Individuals that were previously grandfathered had until March 26, 2013 to complete all of the required training for their respective position and below on the Pennsylvania Prescribed Fire Qualification Standards or they lost their grandfather status.

It is the responsibility of each member organization to track, document, and retain records of their own personnel to ensure that they meet all of the standards. Individuals who are granted grandfather status in any position will also be grandfathered into all lower positions. The grandfather status will not expire as long as an individual maintains their currency (performance at that level or above at least once every five years).

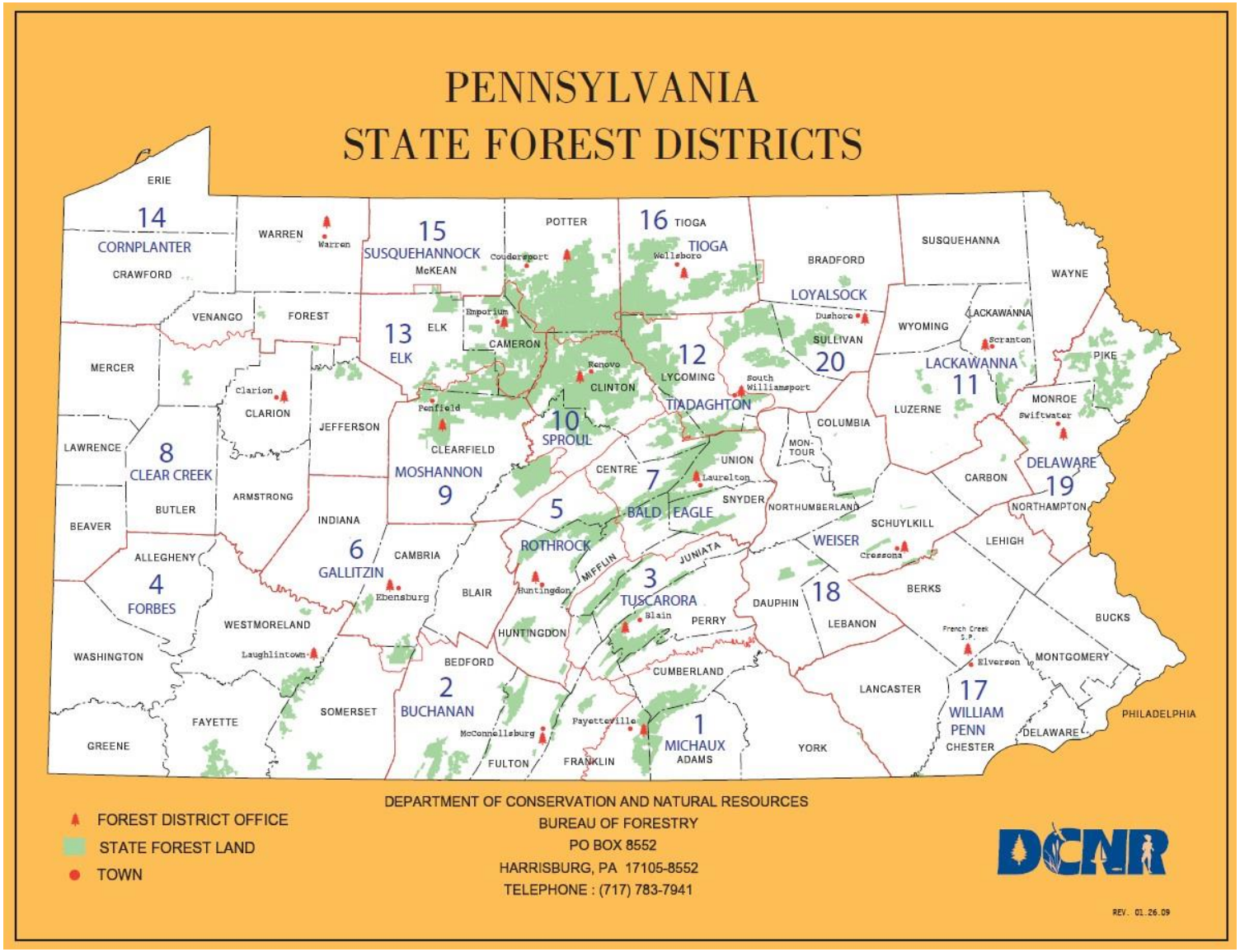
Appendix E

Pennsylvania Wildfire & Prescribed Fire Experience Log

Name:_____ Date:_____ Home Unit:_____ Page #_____of _____

Fire Name	Fire Number	State	County	Position	Operational Periods	Incident Type /Prescribed Fire Complexity	Witness Name (Printed)	Witness Signature

Appendix F – Map of Forest Districts



Appendix G - Pennsylvania Bureau of Forestry – District Forest Fire Wardens

#1 MICHAUX -10099 Lincoln Way East, Fayetteville, PA 17222-9609, **717-352-2211,** FAX: 717-352-3007

#2 BUCHANAN - 440 Buchanan Trail, McConnellsburg, PA 17233-8204, **717-485-3148,** FAX: 717-485-9283

#3 TUSCARORA - 4455 Big Spring Road, Blain, PA 17006-9434, **717-536-3191,** FAX: 717-536-3335

#4 FORBES - PO Box 519, Laughlintown, PA 15655-0519, **724-238-1200,** FAX: 724-238-5000, **Del**: 1291 Route 30

#5 ROTHROCK - 181 Rothrock Lane, Huntingdon, PA 16652, **814-643-2340,** FAX: 814-643-6304

#6 GALLITZIN - P.O. Box 506, Ebensburg, PA 15931-0506, **814-472-1862,** FAX: 814-472-1876, **Del**: 155 Hillcrest Drive

#7 BALD EAGLE - 18865 Old Turnpike Road, Millmont, PA 17845, **570-922-3344,** FAX: 570-922-4696

#8 CLEAR CREEK - 158 South Second Avenue, Clarion, PA 16214, **814-226-1901,** FAX: 814-226-1704

#9 MOSHANNON - 3372 State Park Road, Penfield, PA 15849-1722, **814-765-0821,** FAX: 814-765-0621

#10 SPROUL - 15187 Renovo Road, Renovo, PA 17764, **570-923-6011,** FAX: 570-923-6014

#11 LACKAWANNA - RR1, Box 230, Dalton, PA 18414-9753, **570-945-7133**, FAX: 570-945-7249

#12 TIADAGHTON – 10 Lower Pine Bottom Road, Waterville, PA 17776, **570-753-5409,** FAX: 570-753-5721

#13 ELK, - 258 Sizerville Road, Emporium, PA 15834, **814-486-3353,** FAX: 814-486-5617

#14 CORNPLANTER - 323 N. State Street, North Warren, PA 16365-4867,**814-723-0262,** FAX: 814-723-0270

#15 SUSQUEHANNOCK - P.O. Box 673, Coudersport, PA 16915-0673, **814-274-3600,** FAX: 814-274-7459, **Del**: 3150 E. Second St.

#16 TIOGA - One Nessmuk Lane, Wellsboro, PA 16901, **570-724-2868,** FAX: 570-724-6575

#17 WILLIAM PENN - 845 Park Road, Elverson, PA 19520-9523, **610-582-9660,** FAX: 610-582-9692

#18 WEISER - PO Box 99, Cressona, PA 17929, **570-385-7800,** FAX: 570-385-7804, **Del**: 141 Gordon Nagle Tr, Pottsville, PA 17901

#19 DELAWARE - HC 1 Box 95A, Swiftwater, PA 18370-9723, **570-895-4000** or **4001,** FAX: 570-895-4041

#20 LOYALSOCK - 6735 Route 220, Dushore, PA 18614-8101, **570-946-4049,** FAX: 570-946-4059

PENNSYLVANIA PRESCRIBED FIRE COMPLEXITY RATING WORKSHEET

Site:	Unit:	Agency:	Date:
Complexity Score (circle)			
Low (44-80 pts)	***Moderate (81-150 pts)***	***High (151-220 pts)***	

Weighting Factor x Complexity Value = Total points. Sum of Total points = Complexity Score. ***Assign each complexity value as a 1, 2, 3, 4, or 5.***

Complexity Element	Weighting Factor	Complexity Value (1-5)	Total Points	*Rationale and/or Mitigation Procedures* (Use for clarification of rationale and/or Complexity Value.)
1. Safety	5			
2. Difficulty of Containment	5			
3. Fuels and Fire Behavior	5			
4. Wildland / Urban Interface	5			
5. Objectives	4			
Sub Total (Page 1)				

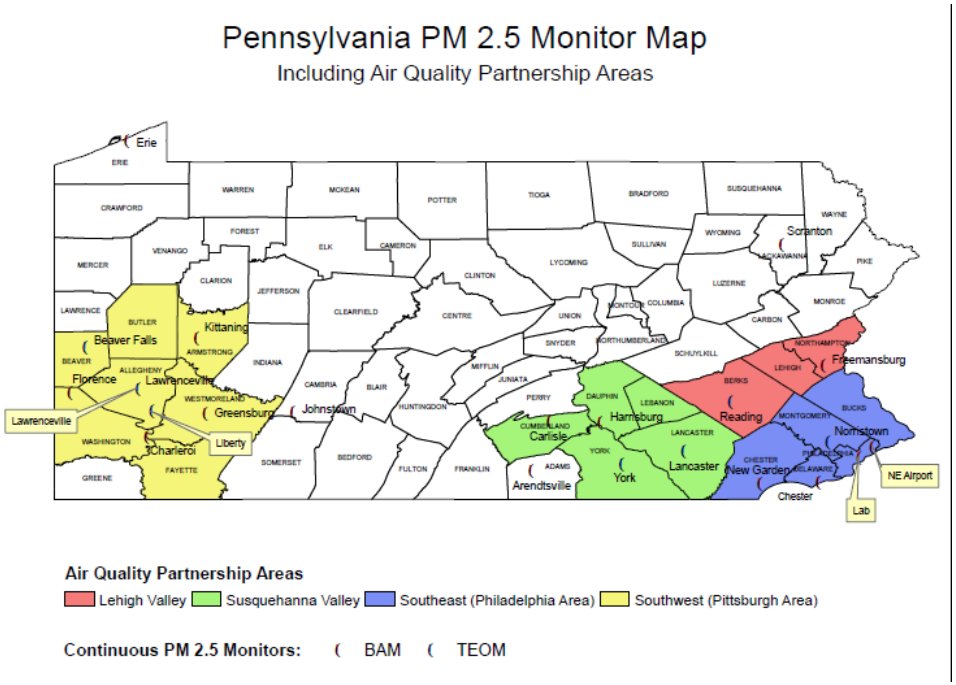
Complexity Element	Weighting Factor	Complexity Value (1-5)	Total Points	*Rationale and/or Mitigation Procedures*
6. Management Organization	**4**			
7. Contingency Planning and Resources	**4**			
8. Natural, Cultural, Social Values	**3**			
9. Air Quality Values	**3**			
10. Logistics	**3**			
11. Tactical Operations	**2**			
12. Cooperator Coordination	**1**			
Sub Total		**Page 2**		**Additional Comments:**
		Page 1		
Complexity Score				**Rated by:**

Complexity Element	Complexity Value Evaluation Examples (Not all items necessarily need to be present)		
	1	3	5
1. Safety Weighting Factor - 5	▪ All safety issues have been identified and mitigated.	• A number of significant issues have been identified and some of them are difficult to address through mitigation.	• Complex safety issues exist.
2. Difficulty of Containment Weighting Factor - 5	• Low threat of escape past unit boundaries. • Probability of Ignition<50%. • Boundaries naturally defensible or firebreaks easily installed and defended. • Secondary control lines strong and easily accessed by vehicles and/or crew.	• Moderate threat of escape from unit boundaries. • 50<Probability of Ignition<70% • Moderate risk of slopover or spot fires. • Fuel type produces numerous firebrands. • Secondary control lines difficult to access or not secure.	• High threat of escape from unit boundaries. • Probability of Ignition>70%. • High risk of slopover or spot fires. • Secondary control lines non-existent or inadequate without significant resource commitment.
3. Fuels and Fire Behavior Weighting Factor - 5	• Low variability in slope & aspect. • Weather uniform and predictable. • Surface fuels (grass and/or needles) only. • No drought present or predicted within burn period. • Duff or organic soils will not ignite.	• Moderate variability in slope & aspect. • Weather variable but predictable. • Ladder fuels present and torching expected. • Fuel types/loads variable. • Dense, tall shrub or mid-seral forest communities. • Drought index indicates normal to moderate drought conditions; present expected within burn period. • Upper level of duff or organic soil will burn.	• High variability in slope & aspect. • Weather variable and difficult to predict. • Extreme fire behavior and/or stand replacement fire. • Fuel types/loads highly variable. • Altered fire regime, hazardous fuel /stand density conditions. • Drought index indicates severe drought conditions; present or expected within burn period. • Significant portions duff or organic soils will burn.
4. Wildland / Urban Interface Weighting Factor - 5	• No risk to people or property within or adjacent to fire, or values to be protected are easily mitigated. • Potential damage from escape low.	• Several values to be protected. • Mitigation through planning and/or preparations is complex. • May require some commitment of specialized resources. • Potential damage from escape moderate.	• Numerous values and/or high values to be protected. • Severe damage likely without significant commitment of specialized resources with appropriate skill levels. • Potential damage from escape high.

Complexity Element	Complexity Value Evaluation Examples (Not all items necessarily need to be present)		
	1	3	5
5. Objectives Weighting Factor - 4	• Prescriptions broad. • Easily achieved objectives.	• Reduction of both live and dead fuels. • Moderate to substantial changes in two or more strata of vegetation. • Objectives judged to be moderately hard to achieve. • Objectives may require moderately intense fire behavior.	• Precise treatment of fuels and multiple ecological objectives. • Major change in the structure of 2 or more vegetative strata. • Conflicts between objectives and constraints. • Requires a high intensity fire or a combination of fire intensities that are difficult to achieve.
6. Management Organization Weighting Factor - 4	• Span of control held to 2 - 3. • 6 - 12 person crew and 1 - 2 engines.	• Span of control held to 4 – 5. • Multiple resources required (engines, dozers, terra torch, etc.). • 8 - 20 person crew and 1 - 3 engines.	• Span of control greater than 5 – 7. • Multiple branch, divisions or groups. • Specialized resources needed to accomplish objectives. • Organized management team required (Fire Use or Incident Management).
7. Contingency Planning and Resources Weighting Factor - 4	• Adequate contingency resources on site.	• Contingency resources limited or have more than a 15 - 30 minutes response time.	• Contingency resources limited or have more than a 30+ minutes response time.
8. Natural, Cultural, and Social Values Weighting Factor - 3	• No risk to natural, cultural, and/or social resources within or adjacent to fire, or mitigation through planning and preparations is adequate.	• Several values to be protected. • Mitigation through planning and/or preparations is complex. • May require some commitment of specialized resources.	• Numerous values and/or high values to be protected. • Severe damage likely without significant commitment of specialized resources with appropriate skill levels.
9. Air Quality Values Weighting Factor - 3	• Few smoke sensitive areas near fire. • Smoke produced for 1 or fewer burning periods. • Air quality agencies generally require only initial notification and/or permitting. • No potential for scheduling conflicts with cooperators.	• Multiple smoke sensitive areas, but smoke impact mitigated in plan. • Smoke produced for 2-3 burning periods. • Infrequent consultation with air quality agencies is needed. • Low potential for scheduling conflicts with cooperators.	• Multiple smoke sensitive areas with complex mitigation actions required. • Health or visibility complaints likely. • Smoke produced for greater than 3 burning periods. • Smoke sensitive Class I air-sheds. • Frequent consultation with air quality agencies is needed. • High potential for scheduling conflicts with cooperators.

Complexity Element	Complexity Value Evaluation Examples (Not all items necessarily need to be present)		
	1	3	5
10. Logistics **Weighting Factor - 3**	• Easy access. • Duration of fire is 1 day (holding or monitoring).	• Difficult access. • Duration of fire support between 2 and 3 days. • Logistical position assigned. • Anticipated difficulty in obtaining resources.	• No vehicle access. • Duration of support is greater than 3 days. • Multiple logistical positions assigned. • High difficulty in obtaining resources.
11. Tactical Operations **Weighting Factor - 2**	• Simple ignition patterns with only one igniter inside the unit. • Ignition complete within one burning period. • Single ignition method used. • Resources required for 1 day. • Holding requirements minimal.	• Multiple firing methods and/or sequences with two igniters inside the unit at once. • Use of specialized ignition methods (i.e. terra-torch or Premo-Mark III). • Ignition continues for two burning periods. • Resources required for 2 to 3 days. • Holding actions to direct or delay fire spread.	• Complex firing patterns highly dependent upon local conditions. • Simultaneous use of multiple firing methods and/or sequences, greater than 2 igniters inside unit. • Simultaneous ground and aerial ignition. • Use of heli-torch. • Resources required for over 3 days. • Multiple mitigation actions at variable temporal and spatial points identified. • Aerial support for mitigation actions desirable or necessary.
12. Cooperator Coordination **Weighting Factor - 1**	• Cooperators not involved in operations. • No concerns.	• Simple joint-jurisdiction fires. • Some competition for resources. • Some concerns.	• Complex multi-jurisdictional fires. • High competition for resources. • High concerns.

Appendix I

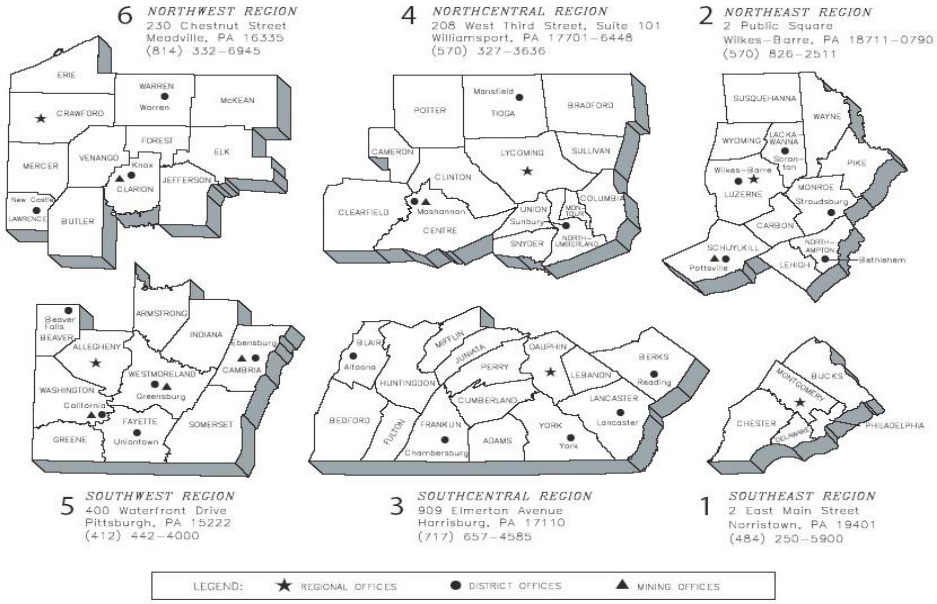


The shaded areas on the map are where Air Quality Index forecasts are made. You can sign up for automatic Air Quality Index forecasts using the following links:

Lehigh Valley – lehighvalley.enviroflash.info
Susquehanna Valley – susqvalley.enviroflash.info
Pittsburgh Area – pittsburgh.enviroflash.info
Liberty-Clairton – liberty.enviroflash.info
Greater Philadelphia – delawarevalley.enviroflash.info

Color	Air Quality Index	Air Quality
Green	0-50	Good
Yellow	51-100	Moderate
Orange	101-150	Unhealthy for Sensitive Groups
Red	151-200	Unhealthy
Purple	201-300	Very Unhealthy
Maroon	>300	Hazardous

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
REGIONAL, DISTRICT and MINING OFFICES



To ensure awareness in case citizen calls are received, contact the following regional Air Quality Operations Chiefs/Program Managers prior to a burn. When sending a burn plan to the regional offices, send it "attention" to these same people. You may email burn plans to the contacts.

REGION	CONTACT	PHONE NUMBER	EMAIL
1	William Stroble, AQ Ops Chief	(484) 250-7500	wstroble@pa.gov
2	Jean Grabowski, AQ Ops Chief	(570) 826-5547	jegrabowsk@pa.gov
3	Kelley Matty, AQ Ops Chief	(717) 705-4830	kmatty@pa.gov
4	Steven Schulte, AQ Ops Chief	(570) 327-3645	sschulte@pa.gov
5	Tim Kuntz, AQ Ops Chief	(412) 442-4021	tkuntz@pa.gov
6	Lori McNabb, AQ Ops Chief	(814) 332-6634	lmcnabb@pa.gov

DEP Central Office Contact: Susan Foster, Chief, Division of Compliance and Enforcement - sufoster@pa.gov
Phone: (717) 772-3369/ Fax: (717) 772-2303

Bureau of Forestry Contact: Todd Breininger, Program Specialist – tbreininge@pa.gov
Phone: (570) 450-4091 / Fax: (570) 450-6024