

# PENNSYLVANIA PRESCRIBED FIRE COMPLEXITY RATING WORKSHEET

<b>Site:</b>	<b>Unit:</b>	<b>Agency:</b>	<b>Date:</b>
<b>Complexity Score (circle)</b>			
<i><b>Low (44-80 pts)</b></i>	<i><b>Moderate (81-150 pts)</b></i>	<i><b>High (151-220 pts)</b></i>	

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)				

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

Complexity Element	Complexity Value Evaluation Examples (Not all items necessarily need to be present)		
	1	3	5
<b>1. Safety</b>  <b>Weighting Factor - 5</b>	<ul style="list-style-type: none"> <li>All safety issues have been identified and mitigated.</li> </ul>	<ul style="list-style-type: none"> <li>A number of significant issues have been identified and some of them are difficult to address through mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>Complex safety issues exist.</li> </ul>
<b>2. Difficulty of Containment</b>  <b>Weighting Factor - 5</b>	<ul style="list-style-type: none"> <li>Low threat of escape past unit boundaries.</li> <li>Probability of Ignition&lt;50%.</li> <li>Boundaries naturally defensible or firebreaks easily installed and defended.</li> <li>Secondary control lines strong and easily accessed by vehicles and/or crew.</li> </ul>	<ul style="list-style-type: none"> <li>Moderate threat of escape from unit boundaries.</li> <li>50&lt;Probability of Ignition&lt;70%</li> <li>Moderate risk of slopover or spot fires.</li> <li>Fuel type produces numerous firebrands.</li> <li>Secondary control lines difficult to access or not secure.</li> </ul>	<ul style="list-style-type: none"> <li>High threat of escape from unit boundaries.</li> <li>Probability of Ignition&gt;70%.</li> <li>High risk of slopover or spot fires.</li> <li>Secondary control lines non-existent or inadequate without significant resource commitment.</li> </ul>
<b>3. Fuels and Fire Behavior</b>  <b>Weighting Factor - 5</b>	<ul style="list-style-type: none"> <li>Low variability in slope &amp; aspect.</li> <li>Weather uniform and predictable.</li> <li>Surface fuels (grass and/or needles) only.</li> <li>No drought present or predicted within burn period.</li> <li>Duff or organic soils will not ignite.</li> </ul>	<ul style="list-style-type: none"> <li>Moderate variability in slope &amp; aspect.</li> <li>Weather variable but predictable.</li> <li>Ladder fuels present and torching expected.</li> <li>Fuel types/loads variable.</li> <li>Dense, tall shrub or mid-seral forest communities.</li> <li>Drought index indicates normal to moderate drought conditions; present expected within burn period.</li> <li>Upper level of duff or organic soil will burn.</li> </ul>	<ul style="list-style-type: none"> <li>High variability in slope &amp; aspect.</li> <li>Weather variable and difficult to predict.</li> <li>Extreme fire behavior and/or stand replacement fire.</li> <li>Fuel types/loads highly variable.</li> <li>Altered fire regime, hazardous fuel /stand density conditions.</li> <li>Drought index indicates severe drought conditions; present or expected within burn period.</li> <li>Significant portions duff or organic soils will burn.</li> </ul>
<b>4. Wildland / Urban Interface</b>  <b>Weighting Factor - 5</b>	<ul style="list-style-type: none"> <li>No risk to people or property within or adjacent to fire, or values to be protected are easily mitigated.</li> <li>Potential damage from escape low.</li> </ul>	<ul style="list-style-type: none"> <li>Several values to be protected.</li> <li>Mitigation through planning and/or preparations is complex.</li> <li>May require some commitment of specialized resources.</li> <li>Potential damage from escape moderate.</li> </ul>	<ul style="list-style-type: none"> <li>Numerous values and/or high values to be protected.</li> <li>Severe damage likely without significant commitment of specialized resources with appropriate skill levels.</li> <li>Potential damage from escape high.</li> </ul>

<b>Complexity Element</b>	<b>Complexity Value Evaluation Examples</b>		
	<b>1</b>	<b>3</b>	<b>5</b>
<b>5. Objectives</b>  <b>Weighting Factor - 4</b>	<ul style="list-style-type: none"> <li>• Prescriptions broad.</li> <li>• Easily achieved objectives.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of both live and dead fuels.</li> <li>• Moderate to substantial changes in two or more strata of vegetation.</li> <li>• Objectives judged to be moderately hard to achieve.</li> <li>• Objectives may require moderately intense fire behavior.</li> </ul>	<ul style="list-style-type: none"> <li>• Precise treatment of fuels and multiple ecological objectives.</li> <li>• Major change in the structure of 2 or more vegetative strata.</li> <li>• Conflicts between objectives and constraints.</li> <li>• Requires a high intensity fire or a combination of fire intensities that are difficult to achieve.</li> </ul>
<b>6. Management Organization</b>  <b>Weighting Factor - 4</b>	<ul style="list-style-type: none"> <li>• Span of control held to 2 - 3.</li> <li>• 6 - 12 person crew and 1 - 2 engines.</li> </ul>	<ul style="list-style-type: none"> <li>• Span of control held to 4 - 5.</li> <li>• Multiple resources required (engines, dozers, terra torch, etc.).</li> <li>• 8 - 20 person crew and 1 - 3 engines.</li> </ul>	<ul style="list-style-type: none"> <li>• Span of control greater than 5 - 7.</li> <li>• Multiple branch, divisions or groups.</li> <li>• Specialized resources needed to accomplish objectives.</li> <li>• Organized management team required (Fire Use or Incident Management).</li> </ul>
<b>7. Contingency Planning and Resources</b>  <b>Weighting Factor - 4</b>	<ul style="list-style-type: none"> <li>• Adequate contingency resources on site.</li> </ul>	<ul style="list-style-type: none"> <li>• Contingency resources limited or have more than a 15 - 30 minutes response time.</li> </ul>	<ul style="list-style-type: none"> <li>• Contingency resources limited or have more than a 30+ minutes response time.</li> </ul>
<b>8. Natural, Cultural, and Social Values</b>  <b>Weighting Factor - 3</b>	<ul style="list-style-type: none"> <li>• No risk to natural, cultural, and/or social resources within or adjacent to fire, or mitigation through planning and preparations is adequate.</li> </ul>	<ul style="list-style-type: none"> <li>• Several values to be protected.</li> <li>• Mitigation through planning and/or preparations is complex.</li> <li>• May require some commitment of specialized resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Numerous values and/or high values to be protected.</li> <li>• Severe damage likely without significant commitment of specialized resources with appropriate skill levels.</li> </ul>
<b>9. Air Quality Values</b>  <b>Weighting Factor - 3</b>	<ul style="list-style-type: none"> <li>• Few smoke sensitive areas near fire.</li> <li>• Smoke produced for 1 or fewer burning periods.</li> <li>• Air quality agencies generally require only initial notification and/or permitting.</li> <li>• No potential for scheduling conflicts with cooperators.</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple smoke sensitive areas, but smoke impact mitigated in plan.</li> <li>• Smoke produced for 2-3 burning periods.</li> <li>• Infrequent consultation with air quality agencies is needed.</li> <li>• Low potential for scheduling conflicts with cooperators.</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple smoke sensitive areas with complex mitigation actions required.</li> <li>• Health or visibility complaints likely.</li> <li>• Smoke produced for greater than 3 burning periods.</li> <li>• Smoke sensitive Class I air-sheds.</li> <li>• Frequent consultation with air quality agencies is needed.</li> <li>• High potential for scheduling conflicts with cooperators.</li> </ul>

<b>Complexity Element</b>	<b>Complexity Value Evaluation Examples</b>		
	<b>1</b>	<b>3</b>	<b>5</b>
<b>10. Logistics</b>  <b>Weighting Factor - 3</b>	<ul style="list-style-type: none"> <li>• Easy access.</li> <li>• Duration of fire is 1 day (holding or monitoring).</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult access.</li> <li>• Duration of fire support between 2 and 3 days.</li> <li>• Logistical position assigned.</li> <li>• Anticipated difficulty in obtaining resources.</li> </ul>	<ul style="list-style-type: none"> <li>• No vehicle access.</li> <li>• Duration of support is greater than 3 days.</li> <li>• Multiple logistical positions assigned.</li> <li>• High difficulty in obtaining resources.</li> </ul>
<b>11. Tactical Operations</b>  <b>Weighting Factor - 2</b>	<ul style="list-style-type: none"> <li>• Simple ignition patterns with only one igniter inside the unit.</li> <li>• Ignition complete within one burning period.</li> <li>• Single ignition method used.</li> <li>• Resources required for 1 day.</li> <li>• Holding requirements minimal.</li> </ul>	<ul style="list-style-type: none"> <li>• Multiple firing methods and/or sequences with two igniters inside the unit at once.</li> <li>• Use of specialized ignition methods (i.e. terra-torch or Premo-Mark III).</li> <li>• Ignition continues for two burning periods.</li> <li>• Resources required for 2 to 3 days.</li> <li>• Holding actions to direct or delay fire spread.</li> </ul>	<ul style="list-style-type: none"> <li>• Complex firing patterns highly dependent upon local conditions.</li> <li>• Simultaneous use of multiple firing methods and/or sequences, greater than 2 igniters inside unit.</li> <li>• Simultaneous ground and aerial ignition.</li> <li>• Use of heli-torch.</li> <li>• Resources required for over 3 days.</li> <li>• Multiple mitigation actions at variable temporal and spatial points identified.</li> <li>• Aerial support for mitigation actions desirable or necessary.</li> </ul>
<b>12. Cooperator Coordination</b>  <b>Weighting Factor - 1</b>	<ul style="list-style-type: none"> <li>• Cooperators not involved in operations.</li> <li>• No concerns.</li> </ul>	<ul style="list-style-type: none"> <li>• Simple joint-jurisdiction fires.</li> <li>• Some competition for resources.</li> <li>• Some concerns.</li> </ul>	<ul style="list-style-type: none"> <li>• Complex multi-jurisdictional fires.</li> <li>• High competition for resources.</li> <li>• High concerns.</li> </ul>