

Prescribed Fire Implementation, RX-301
Pre-Course Work
(100 points total)

Name:

Agency/Unit:

Place your answers to the questions in the brackets.

1. What interagency document(s) provides standardized procedures specifically associated with the planning and implementation of prescribed fire? (2 points)

2. Identify your agency and list the agency specific document used for fuels management direction: (2 points)

3. List your agency's unit planning document(s) that allows for hazardous fuels treatment and prescribed burning. (2 points)

4. Per the National Mobilization Guide in National Preparedness Level 5: WFU and Prescribed fires can be continued or be initiated if the proposed action is recommended at: (2 points)

5. Does your state have a statute covering prescribed burning activities? If so, does the statute provide a standard in determining liability for damage or injury caused by prescribed fire or resulting smoke? (2 points)

6. Match each prescribed fire plan element to the best description: (21 points)

- | | |
|--|---|
| a) Signature Page | Denotes approval of the burn plan |
| b) Go/No-Go Checklist(s) | Provides fiscal data |
| c) Complexity Analysis | Includes burn location, vegetation, maps, etc. |
| d) Description of the Prescribed Fire Area | Determines whether the burn is a type 1, 2, or 3 |
| e) Objectives | Provides the purpose(s) of the burn |
| f) Funding | Establishes expiration date for burn implementation |
| g) Prescription | Limits weather and fuels parameters |
| | |
| a) Scheduling | Includes a job hazard/risk analysis |
| b) Pre-burn Considerations | Time frame for when the burn can/cannot be ignited |
| c) Briefing | Information given to all resources, required daily |
| d) Organization and Equipment | Identifies radio frequencies |
| e) Communication | List of overhead and resources required for the burn |
| f) Public and Personal Safety, Medical | Where ignition always begins, required daily |
| g) Test Fire | Describes line to be built, snagging, hoselays, etc. |
| | |
| a) Ignition Plan | Includes any rehab, reports, etc. |
| b) Holding Plan | When a spot/sloper cannot be contained within next burning period |
| c) Contingency Plan | Activated when out of prescription, objectives are not attained, etc. |
| d) Wildfire Conversion | Placement of crews, engines, etc. |
| e) Smoke Management and Air Quality | Collection and analysis of specific observations |
| f) Monitoring | Identifies receptive areas that can be impacted by combustion |
| g) Post-burn activities | How the unit will be fired |

BehavePlus Exercise

Instructions: Attach BehavePlus runs to support your answers. You will not receive credit for these questions without the necessary BehavePlus runs.

Your supervisor is writing a prescribed fire plan and asked you to review the prescription, the fuel reduction goal, and objectives. Determine whether or not the objectives can be attained within the entire spectrum of the prescription parameters. Support your determination with BehavePlus runs.

The fuels are a mixed conifer overstory ranging from 75-150 feet tall (average height is 100’); with an average of 70% live crown ratio and an average bark thickness of one inch. Dominant tree species are ponderosa pine, white fir, and incense cedar. The understory shrub layer ranges in height from 4-10’. There is a moderate to heavy dead and down fuel component. Slopes average 25% on a west aspect. Fuels are best represented by fuel model 10.

Goal: Reduce dead and down fuels and under story shrubs by maintaining this fire-adapted ecosystem through the ecologically appropriate use of fire.

Objective: Reduce dead and down fuels in all size classes by 60% to 80% in burned areas immediately post burn.

Objective: Induce mortality in greater than 70% of the under story shrubs immediately post burn.

Objective: Limit mortality in mature ponderosa pines to less than 10%.

Prescription:

Weather / Fuels	Fuel Model 10
Temperature (degrees F°)	40 – 90°
Relative Humidity (%)	15 – 60%
Mid-Flame Wind Speed (mph)	0 – 10
Wind Direction	Any
1-hour Fuel Moisture (%)	3 – 12
10-hour Fuel Moisture (%)	4 – 13
100-hour Fuel Moisture (%)	5 – 14
1000-hour Fuel Moisture (%)	8 – 20
Live Woody Fuel Moisture (%)	75 – 120

- 7a. Are ALL the objectives attainable under the current prescription? (Hint, use the hot end of the prescription, worst case scenario, for your BehavePlus run.) Explain. (short answer, 4 points)
- b. In meeting all the objectives would it make any difference whether it was a head fire or backing fire? Explain. (short answer, 4 points)
8. What was the predicted mortality with both fire spreads on the hot end of the prescription? 6 points
- Mortality with a backing fire
- Mortality with a head fire
9. If a group of five ponderosa pines, (8 inches DBH, 30 foot tall) torched out with a 20 foot wind of 15, 20, and 25 mph, what is the maximum spotting distance at the same elevation? (Hint, run a 'spot' run separately and remember the average canopy height is 100 feet.) (9 points)
- Spotting distance with 15 mph winds
- Spotting distance with 20 mph winds
- Spotting distance with 25 mph winds

Ignition Scenario

Instructions: Refer to the ignition scenario map in the pre-course reference material.

You are the firing boss on the Badger Prescribed Burn. It is early October and fuels are dry but within prescription. The prescribed fire area is 300 acres.

Fuels: Mature ponderosa pine (>100' tall) with heavy dead and down component. There are several pockets of white fir reproduction and a moderate amount of snags scattered throughout the unit.

Topography: Slopes average 30-40%. Some wet meadows are within the area.

Weather Forecast: Dry bulb: maximum 72, minimum 51. Relative humidity: minimum 26%, maximum 82%, with good humidity recovery beginning at sunset. Winds: ridge winds 8-12 mph with gusts up to 15 mph out of the southeast in the afternoon, decreasing towards sunset and becoming calm at night. Weather parameters are in prescription.

Resources Available: There is a five person firing team, equipped with radios, three drip torches and 50 gallons of drip torch mix. A holding boss is assigned along with adequate resources. There is a hoselay around the unit.

Objectives: Reduce 1 and 10 hour fuels by a minimum of 70%, reduce 100 and 1000 hour fuels by a minimum of 50%. Achieve >50% mortality in white fir, <10% in ponderosa pine.

Assignment: Blackline Division B to a depth of 150-200 feet.

10. At which point would you start firing? (2 points)

- a) 1
- b) 2
- c) 3
- d) 4

11. Why did you choose the above point? (short answer, 3 points)

12. List three things you should be observing during the test burn. (3 points)
- 1.
 - 2.
 - 3.
13. What type of fire spread would be the most effective to complete the blackline? (2 points)
- a) Head
 - b) Backing
 - c) Flanking
14. How should your burners be staggered during the blackline? (Hint, igniter number one is the closest to the control line.) (2 points)
- a) 1-2-3
 - b) 3-2-1
15. What time of day would you burn? (2 points)
- a) 0001 -0600
 - b) 0600-1200
 - c) 1200-1800
 - d) 1800-2400
16. Why did you choose the above time? (short answer, 2 points)
17. Can you complete your assignment with the amount of resources and equipment you have? What concerns do you have? Explain your answer. (short answer, 3 points)

Holding Scenario

Instructions: Refer to the holding scenario map in the pre-course reference material.

You are the Holding Boss on Division B of the Big Creek Prescribed Fire. It is mid-May and fuels are within prescription. The prescribed fire area is 80 acres.

Fuels: Cured grass 1 to 2 feet tall with islands of chaparral mixed in. Grass is continuous enough to carry fire throughout the entire unit. Fuels are heavier in the drainages with less grass and more oak leaf litter.

Topography: Moderate to rolling terrain with rocky outcrops and average slopes of 15-20%. In the drainages maximum slope is 30%. Drainages in the burn unit are dry and wide enough for control lines.

Weather Forecast: Dry bulb: maximum 86, minimum 57. Relative humidity: maximum 79%, minimum 25%. Winds: ridge winds 5-7 with gusts up to 10 out of the northwest in the afternoon, decreasing towards sunset and becoming calm at night. Midflame winds are typically influenced more by local topography.

Prescription Range: Dry bulb 40-80; Relative humidity 25-60%; Winds 0-7 any direction.

Division Resources Available: One 20-person Type 2 handcrew, two Type 3 engines, one fold-a-tank. There is a hoselay around the unit and the nearest water source is a 15 minute turn around time.

Objectives: Reduce 1 hour size class fuels 80-100%; achieve 40-80% mortality in the chaparral. Let fire back the last 30 feet into the drainages to keep the intensity low.

Assignment: Keep fire within the unit. Coordinate with the Firing Boss and the Division A Holding Boss.

18. Based on current conditions do you have enough resources to hold your division? Justify your answer. (short answer, 3 points)

19. If firing starts at point 1, where and how would you deploy your holding resources? Explain. (short answer, 4 points)

Type 2 hand crew?

Type 3 engines?

20. List three safety concerns you will mention at the briefing. (3 points)

1.

2.

3.

21. The temperature is 86 degrees and one hour fuels are at 4%. An island of chaparral torches out 40 feet from your line. Using BehavePlus, what is the probability that an ember would ignite a spot fire in an unshaded area at point 2? (3 points)

a) 72%

b) 77%

c) 86%

22. A squad boss reports three 10x10 spot fires 50 feet east of the control line. List three actions you would take: (3 points)

1.

2.

3.

Monitoring Questions

23. List six responsibilities a fire monitor (FEMO) can perform for a Burn Boss. (6 points)
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
 - 6.
24. List one specific prescribed fire objective that the fire monitor can evaluate during the burn. (2 points)
25. At 1400 hours the fire monitor reports an on-site (same elevation) dry bulb of 82 degrees, RH of 27% and northwest winds at six mph. What is the one hour fuel moisture? (3 points)
- a) 4%
 - b) 7%
 - c) 8%
 - d) 12%