Prescribed Fire Implementation

RX-301

NFES 1651

Instructor Guide

APRIL 2009

CERTIFICATION STATEMENT

on behalf of the

NATIONAL WILDFIRE COORDINATING GROUP

The following training material attains the standards prescribed for courses developed under the interagency curriculum established and coordinated by the National Wildfire Coordinating Group. The instruction is certified for interagency use and is known as:

Prescribed Fire Implementation, RX-301
Certified at Level I

This product is part of an established NWCG curriculum. It meets the COURSE DEVELOPMENT AND FORMAT STANDARDS – Sixth Edition, 2003 and has received a technical review and a professional edit.

Member NWCG and Training Working Team Liaison

Date 4/7/2009

Chairperson, Training Working Team

Date 4/3/09

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National Interagency Fire Center, Fire Training, 3833 S. Development Ave., Boise, Idaho 83705.
E-mail: nwcg_standards@nifc.blm.gov.

Additional copies of this publication may be ordered from National Interagency Fire Center, ATTN: Great Basin Cache Supply Office, 3833 South Development Avenue, Boise, Idaho 83705. Order NFES 1651.

NWCG TRAINING WORKING TEAM
POSITION ON COURSE PRESENTATION AND MATERIALS

The recommended hours listed in the FMCG are developed by Subject Matter Experts based on their estimation of the time required to present all material needed to adequately teach the unit and course objectives. The hours listed may vary slightly due to factors such as number of students, types and complexity of course activities, and the addition of local materials. NWCG does not approve of course delivery varying greatly from the recommended course hours. Instructors and students are cautioned that in order to be recognized as an NWCG certified course, certain guidelines must be followed:

- Lead instructors are encouraged to enhance course materials to reflect the conditions, resources and policies of the local unit and area as long as the objectives of the course and each unit are not compromised.

- Exercises can be modified to reflect local fuel types, resources and conditions where the student will be likely to fill incident assignments. The objectives and intent of the exercises must remain intact.

- Test questions may be added that reflect any local information that may have been added to the course. However, test questions in the certified course materials should not be deleted to ensure the accurate testing of course and unit objectives.

- Test grades, to determine successful completion of the course, shall be based only on the questions in the certified course materials.

If lead instructors feel that any course materials are inaccurate, that information should be submitted by e-mail to NWCG Fire Training at nwcg_standards@nifc.blm.gov. Materials submitted will be evaluated and, where and when appropriate, incorporated into the appropriate courses.

COURSE LENGTH FOR NWCG COURSES

If a course is available through PMS, the recommended course hours and the "NWCG Position on Course Presentation and Materials" will be adhered to by the course instructors.

- Unit times represent the allotted time to teach the unit and complete the exercises, simulations, and tests.

- Recommended course hours are given to help the students and the course coordinator with planning travel, room reservations, and facilities usage. This represents the time estimated to present the NWCG provided materials including time for breaks, lunch periods, set-up for field exercises or simulations, etc.

- Actual times for both the unit and the course may vary based on number of students, types and complexity of course activities, and the addition of local instructional materials.

If the course is not available through PMS, e.g., L-380, and has been developed using NWCG course criteria, minimum course hour requirements have been established and must be adhered to by the course developer and course instructors.

Course hours for all NWCG courses can be found in the Field Manager's Course Guide (http://www.nwcg.gov/pms/training/fmcg.pdf). If the hours are a minimum versus recommended they will be stated as such.

PREFACE

Prescribed Fire Implementation, RX-301 is a recommended training course in the National Wildfire Coordinating Group (NWCG) wildland and prescribed fire curriculum. It was developed by an interagency group of experts with guidance from NWCG Training under authority of the NWCG. The primary participants in this development effort were:

U.S. Forest Service
Ouachita and Ozark/St. Francis National Forests
Andy Dyer

Fire and Aviation Management, NIFC
Tom Johnston

San Juan National Forest
Shawna Legarza

Sierra National Forest
Dave McCandliss

Bureau of Land Management
Redding Field Office
Walter Herzog

National Park Service
Sequoia and Kings Canyon National Parks
Ben Jacobs

Bureau of Land Management
NIFC Fire Training
Woody Kessler

NWCG appreciates the efforts of these personnel and all those who have contributed to the development of this training product.

CONTENTS

INSTRUCTIONAL UNITS

COURSE INSTRUCTIONS

This section contains instructions and information essential to the course coordinator and instructors in making an effective presentation. Cadre members must read this section and be thoroughly familiar with course procedures and material prior to presentation.

I. INTRODUCTION

Prescribed Fire Implementation, RX-301 is a 24-hour course designed to introduce students to the tools and techniques used to perform the job of a Prescribed Fire Burn Boss (RXB). Additional course hours will be required if agency specific material is added.

The course is based on the tasks in the RXB position task book. It leads students through the duties and responsibilities associated with the RXB position. The desired outcome of this course is to prepare students for trainee assignments as a Prescribed Fire Burn Boss Type 2 (RXB2).

II. COURSE OBJECTIVE

To provide students with the information to successfully review a prescribed fire burn plan for technical accuracy and implement a prescribed fire.

III. INSTRUCTOR PREREQUISITES

Refer to the Field Manager's Course Guide (PMS 901-1) for instructor prerequisites specific to this course. This guide is accessible at http://www.nwcg.gov/pms/training/training.htm.

This is a 300 level course. In addition to the course specific instructor prerequisites, all instructors are required to have 32 hours of instructor training such as Facilitative Instructor (M-410), or an equivalent course, as stated in the Field Manager's Course Guide.

IV. COURSE COORDINATOR/INSTRUCTOR PREPARATION

A. General Information

This course is presented in short lectures, class discussion, exercises, and an optional field trip/site visit.

Instructors have the option of using tactical decision games (TDGS) to supplement the exercises. For information on facilitating TDGS, refer to the Tactical Decision Game Library on the Fireline Leadership Web site: http://www.fireleadership.gov/toolbox/TDG_Library/default.htm.

The Course Coordinator's Guide (PMS 907) contains general information for presentation of NWCG courses. The course coordinator and instructors should be thoroughly familiar with this guide (online at http://www.nwcg.gov/pms/training/training.htm).

B. BehavePlus

Part of the pre-course work requires students to create BehavePlus runs. When this course was published, the BehavePlus calculations in the pre-course work answer key were correct.

If students use a newer version of BehavePlus to complete the pre-course work, the answers may need to be recalculated.

C. Unit 4 Exercise - Site Evaluation and Technical Review

For this exercise, students review a prescribed fire burn plan for technical accuracy and implement a prescribed burn.

To conduct the exercise, the cadre must choose one of the three methods listed below (a live burn using a local burn plan is preferred):

- Method 1: Local burn plan (actual live burn)

  This method requires an approved prescribed burn plan, the ability to visit the potential burn site, and a staff briefing.

- Method 2: Local burn plan (paper-based, no live burn)

  Use this method if weather conditions are unfavorable or conducting a live burn is not possible. The same instructions and forms for Method 1 apply for this method; however, instructors can use an approved prescribed burn plan of their choice and visit the potential burn site.

- Method 3: Virginia's Prescribed Fire Plan

  For this method, use the Virginia's Prescribed Fire Plan (Appendix D). If desired, the cadre can replace the Virginia's Prescribed Fire Plan and support materials with locally produced material to better meet students' needs.

NOTE: All methods require advance planning and preparation. The course coordinator/cadre must prepare all materials, acquire supplies, and make necessary arrangements at least two weeks before course presentation (refer to the checklists/instructions in Unit 4, pages 4.11 – 4.27).

V. COURSE MATERIALS

Refer to Appendix A for course ordering and support information.

A. Instructor Guide

The Instructor Guide is designed as a teaching aid to assist instructors in presenting the information. Each unit begins with a unit overview that outlines the lesson's approximate delivery time, objectives, learning strategy, instructional methods, required materials, and evaluation criteria.

The lesson plan for each unit is organized in a two-column format:

- The "Outline" column contains the lesson content that supports the learning objectives. This column also includes questions to ask students, descriptions of exercises, and additional teaching points to supplement information in the text. Notes to the instructor are in **BOLD CAPS**.

- The "Aids & Cues" column lists references (slide numbers, handouts, publications, etc.) that remind instructors to display or refer to specific materials.

B. Course Materials CD-ROM

The CD contains complete copies of the Instructor Guide, Student Workbook, and Appendixes in bookmarked files in portable document format (pdf).

C. Student Workbook

Student Workbooks should be ordered prior to the beginning of the course, one for each student.

D. Agenda

An example course agenda is on page 13. Revise the agenda as appropriate. If an actual burn will be done, the agenda must be flexible to meet burn day prescriptions.

VI. STUDENT TARGET GROUP

The target group should consist of individuals qualified as Firing Boss (FIRB) and Incident Commander Type 4 (ICT4) desiring to become qualified as a Prescribed Fire Burn Boss Type 2 (RXB2).

- It is recommended that students have completed Prescribed Fire Plan Preparation (RX-341).

- It is strongly recommended that students have experience using BehavePlus.

VII. STUDENT PREREQUISITES

Refer to the Field Manager's Course Guide for student prerequisites.

VIII. STUDENT PRE-COURSE WORK

The pre-course materials are located in Appendix C and online at http://training.nwcg.gov/pre-courses.html.

The course coordinator can either send the pre-course work on a CD to nominees or refer nominees to the Web site. Students should receive pre-course work information at least six weeks prior to beginning the course.

The course coordinator must send each nominee a letter that includes information and instructions for completing the pre-course work. The letter should also inform nominees that they must obtain a score of 70% or higher to attend the course. A sample letter is on page 9.

NOTE: If sending the pre-course work on CDs, include a copy of the letter. If referring nominees to the online version, list the Web site in the letter.

IX. COURSE ACCEPTANCE LETTER

Upon successfully passing the pre-course work, the course coordinator or lead instructor must send each student a course acceptance letter. A sample course acceptance letter is on page 11.

X. EXAMINATION AND CERTIFICATION

All materials for the final exam are in Appendix E. The exam should take approximately two hours to complete and two hours to grade. Students must obtain a score of 70% or higher on the final exam to receive a certificate of completion for this course.

XI. CADRE MEETINGS

A cadre meeting in advance of the course presentation is suggested due to the relationship of the unit material (changing instructional materials in one unit may impact a later unit).

If a local burn is planned, it is recommended that all cadre members make a site visit prior to instruction. The local burn boss should attend cadre meetings and other meetings as recommended by the lead instructor.

XII. RECOMMENDED CLASS SIZE

The recommended class size is 25 – 30 students. The recommended student to instructor ratio is 5:1. Cadre members should be present for all instructional sessions.

XIII. CLASSROOM REQUIREMENTS

The characteristics of the classroom and supportive facilities have a great impact on the learning environment. The classroom should be chosen and viewed well in advance of the presentation.

Characteristics to look for in a classroom:

- Adequate area for students and materials.
- Limited outside interruptions and interferences.
- Controlled lighting, good acoustics, and good ventilation.

XIV. COURSE EVALUATION FORMS

Copies of the course evaluation forms are located in Appendix F.

A. Student Final Course Evaluation Form

This form allows students to critique the instructors, course material, and quality of the training experience.

B. Training Course Evaluation Form

This form allows the course coordinator and instructor cadre to comment on course content for input into the Development Unit database for future revisions. If common major problems exist, the course can be prioritized on the revision schedule as a critical need from these field comments.

XV. APPENDIXES

The following appendix is included in this Instructor Guide:

- Appendix A – Course Ordering and Support Information

The following appendixes are on the CD-ROM:

- Appendix B – PowerPoints
- Appendix C – Pre-Course Materials
- Appendix D – Virginia's Prescribed Fire Plan
- Appendix E – Final Exam Materials
- Appendix F – Course Evaluation Forms

Prescribed Fire Implementation, RX-301
Pre-Course Work Letter to Nominee

To: ***"Nominee"***

From: Course Coordinator

Subject: Pre-Course Work

Please complete the pre-course work located "***on the enclosed CD" or "at the following Web site"***: http://training.nwcg.gov/pre-courses.html

Return your completed pre-course work to me by ***"date."*** You must obtain a score of 70% or higher to attend the course. You will be contacted by ***"date"*** with information relative to your status for attending the course.

Please call me if you have any questions.

Course Administrator/Coordinator
Address
Telephone Number

Prescribed Fire Implementation, RX-301
Course Acceptance Letter

To: ***"Student"***

Congratulations on successfully passing the pre-course work for Prescribed Fire Implementation, RX-301. The pre-course work will be reviewed during class.

The course will be held ***"time, date, location."*** Please do not make travel arrangements to arrive after the scheduled start time or to depart prior to the scheduled course completion time.

- Bring the following references to the course:
  - Incident Response Pocket Guide (PMS-461)
    http://www.nwcg.gov/pms/pubs/pubs.htm
  - Prescribed Fire Burn Boss Position Task Book
    http://www.nwcg.gov/pms/pms.htm
  - Interagency Standards for Fire and Fire Aviation Operations (Red Book)
    http://www.nifc.gov/policies/red_book.htm
- You will also need to bring a copy of the following references, which are online at http://training.nwcg.gov/pre-courses.html:
  - Interagency Prescribed Fire Planning and Implementation Procedures and Reference Guide
  - Impassable Bay Prescribed Fire Review (Escaped Fire Review – Compartments 16 and 117)
  - Initial Impression Report
  - "Guide to a Successful Prescribed Burn" by Bill Ott

Please call me if you have any questions.
Course Administrator/Coordinator
Address, Telephone Number

Prescribed Fire Implementation, RX-301
Sample Agenda

Day 1

Unit 0 – Introduction	0900 – 0930 (30 min)
Unit 1 – Pre-Course Material Review	0930 – 1030 (1 hr)
Unit 2 – Operational Leadership in Prescribed Fire	1030 – 1200 (1.5 hrs)
Lunch	
Unit 3 – Liability	1300 – 1530 (2.5 hrs)
Unit 4 – Prescribed Fire Plan Evaluation and Pre-Burn Preparation (Class Instruction)	1530 – 1730 (2 hrs)

Day 2

Unit 4 – Prescribed Fire Plan Evaluation and Pre-Burn Preparation (Field Exercise)	0800 – 1200 (4 hrs)
Lunch	
Unit 5 – Pre-Burn Operations	1300 – 1430 (1.5 hrs)
Unit 6 – Daily Operations	1430 – 1730 (3 hrs)

Day 3

Unit 7 – Contingency Operations, Wildfire Conversion and Declared Wildfire Review	0800 – 0930 (1.5 hrs)
Unit 8 – Post-Burn Activities and Documentation	0930 – 1000 (30 min)
Student questions on final exam material	1000 – 1030 (30 min)
Administer final exam	1030 – 1230 (2 hrs)
Grade final exam, lunch	1230 – 1500 (2.5 hrs)
Course close-out	1500 – 1600 (1 hr)

Note the agenda does not show breaks; instructors should ensure a 5-10 minute break is given every 1 – 1.5 hours of instruction.

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 0 – Introduction

Time 30 Minutes

Objectives

1. Introductions.
2. Discuss course logistics.
3. Discuss the course objective.
4. Identify course reference materials.
5. Explain student evaluation methods.

Strategy

Instructors will brief students on the agenda, course structure, and evaluation methods.

Instructional Methods

- Lecture, classroom discussion

Instructional Aids

- Computer with LCD projector and presentation software
- Flip charts and markers

Reference Materials

☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide

☐ Incident Response Pocket Guide

☐ Prescribed Fire Burn Boss Position Task Book

☐ Interagency Standards for Fire and Fire Aviation Operations (Red Book)

Exercise

Course Expectations (page 0.4)

Outline

I. Introductions

II. Course Logistics

III. Course Objective

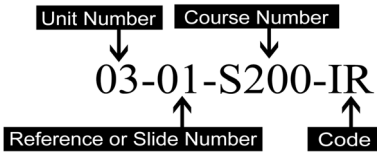
IV. Course Reference Materials

V. Measuring Student Performance

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 0 – Introduction

OUTLINE	AIDS & CUES
NWCG MISSION STATEMENT SLIDE.	00-01-RX301-PPT
WELCOME STUDENTS TO THE RX-301 COURSE.	00-02-RX301-PPT
PRESENT UNIT OBJECTIVES.	00-03-RX301-PPT
I. INTRODUCTIONS	00-04-RX301-PPT
INTRODUCE INSTRUCTORS AND STUDENTS.	
II. COURSE LOGISTICS	00-05-RX301-PPT
• Review the schedule of events/agenda	
IF THE UNIT 4 EXERCISE INVOLVES A LOCAL BURN PLAN, GIVE STUDENTS A BRIEF OVERVIEW CONCERNING THE SITE VISIT.	
• Punctuality, breaks	
• Facility locations (local eateries, vending machines, restrooms, etc.)	
• Message locations, telephones, cell phone etiquette	

OUTLINE	AIDS & CUES

EXERCISE: Course Expectations

Purpose: Students identify their expectations for the course.

Time: 10 minutes

Format: Small groups

Materials needed: Flip charts, markers

Instructions:

1. Tell students:

    - The previous Prescribed Fire Burn Boss, RX-300 course focused only on prescribed fire plan preparation. As a result of a joint decision by NWCG and the Fire Use Working Team, RX-300 was divided into two courses: RX-341, Prescribed Fire Plan Preparation, and RX-301, Prescribed Fire Implementation.

    - This course does not cover plan preparation.

2. Instruct students to create a list of expectations they have for the course.

3. Discuss their lists and save them for the final day to see if the course met student expectations.

End of Exercise.

OUTLINE	AIDS & CUES
III. COURSE OBJECTIVE To provide students with the information to successfully review a prescribed fire plan for technical accuracy and implement a prescribed fire.	00-06-RX301-PPT
IV. COURSE REFERENCES	00-07-RX301-PPT
STUDENTS WERE TO BRING THE FOLLOWING REFERENCES TO CLASS: • Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide (will be referred to as "The Guide" throughout the course) • Incident Response Pocket Guide (IRPG), PMS 461 • Prescribed Fire Burn Boss Position Task Book • Interagency Standards for Fire and Fire Aviation Operations (Red Book)	
V. MEASURING STUDENT PERFORMANCE • There is a comprehensive final exam. • Students will receive a general overview and a copy of the West Speers Loop Prescribed Fire Plan the evening prior to the examination. • Students are expected to review the plan for technical accuracy and come to class the next day prepared to ask questions.	00-08-RX301-PPT

OUTLINE	AIDS & CUES
• Exam questions are based on the information contained in the plan and events dealing with implementation. • The prescribed fire plan may be referenced during the exam. • Students must receive a passing score of 70% or higher on the exam to receive a certificate of completion for the course.	
ANY QUESTIONS?	00-09-RX301-PPT

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 1 – Pre-Course Material Review

Time 1 Hour

Objectives

1. Identify pre-course work objectives.
2. Review pre-course work assignment.

Strategy

The intent of this unit is to answer any questions students have regarding the pre-course work. Before presenting the unit, review students' pre-course work, identify commonly missed questions, and be prepared to explain where and how the correct answers were derived.

NOTE: If students used a newer version of BehavePlus, the BehavePlus answers may need to be recalculated.

Instructional Methods

- Lecture, classroom discussion

Instructional Aids

- Computer with LCD projector and presentation software

Reference Materials

☐ Interagency Standards for Fire and Fire Aviation Operations (Red Book)

☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide

☐ "Guide to a Successful Prescribed Burn" by Bill Ott (**Note:** Students were to bring this article to class; however, suggest printing extra copies to provide to students as needed. A copy of the article is in Appendix C.)

☐ BehavePlus computer software

Exercises

There are no formal exercises associated with this unit. The cadre may choose to create an exercise that will help students understand any missed questions.

Evaluation Method

The pre-course work is graded prior to students being accepted to the course.

Outline

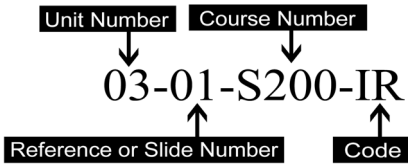
I. Pre-course Work Objectives

II. Review Pre-Course Work

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide
SW – Student Workbook
HO – Handout
IR – Instructor Reference
SR – Student Reference
PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 1 – Pre-Course Material Review

OUTLINE	AIDS & CUES
TITLE SLIDE.	01-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	01-02-RX301-PPT
I. PRE-COURSE WORK OBJECTIVES	01-03-RX301-PPT
• Review and be prepared to discuss interagency policy, agency specific policy, and unit planning documents that permit the use of prescribed fires as a management tool.	
• Demonstrate the ability to interpret and validate BehavePlus outputs as they apply to prescribed fire plan objectives and prescription.	
• Demonstrate knowledge of ignition, holding, and monitoring skills necessary to implement a prescribed fire.	01-04-RX301-PPT
• Identify all required prescribed fire plan elements per national policy.	

OUTLINE	AIDS & CUES
II. REVIEW PRE-COURSE WORK	01-05-RX301-PPT
• Hand out corrected pre-course work to students.	
• Review answers using slides 6 – 43 (cadre can also refer to pages 1.5 – 1.21).	01-06-RX301-PPT thru 01-43-RX301-PPT
• Discuss common errors and address any questions.	
REVIEW AND DISCUSS "GUIDE TO A SUCCESSFUL PRESCRIBED BURN" BY BILL OTT (ENSURE STUDENTS HAVE A COPY OF THE ARTICLE; PROVIDE AS NEEDED).	01-44-RX301-PPT
ANY QUESTIONS?	01-45-RX301-PPT

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

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

   - **Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide**
   - **Interagency Standards for Fire and Aviation Operations (Red Book)**

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

   BLM **Manual Section 9214**
   FWS **Fire Management Handbook**
   NPS **RM 18, Chapter 10**
   USFS **FSM 5140**
   BIA **90 IAM BIA Fuels Management Handbook**

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

   BLM **Resource Management Plan, Fire Management Plan**
   FWS **Comprehensive Conservation Plan (CCP), Fire Management Plan**
   NPS **Park General Management Plan, Resource Management Plan, Fire Management Plan**
   USFS **Land and Resource Management Plan, Fire Management Plan**
   BIA **Resource Management Plan, Fire Management Plan**

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)

   The agency at the regional or state office level. Check current addition of Guide.

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)

The correct answer depends on which state the student works.

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

a) Signature Page	**A** Denotes approval of the burn plan
b) Go/No-Go Checklist(s)	**F** Provides fiscal data
c) Complexity Analysis	**D** Includes burn location, vegetation, maps, etc.
d) Description of the Prescribed Fire Area	**C** Determines whether the burn is a Type 1, 2, or 3
e) Objectives	**E** Provides the purpose(s) of the burn
f) Funding	**B** Establishes expiration date for burn implementation
g) Prescription	**G** Identifies weather and fuels parameters

a) Scheduling Analysis	**F** Includes a job hazard/or other agency specific risk
b) Pre-burn Considerations	**A** Timeframe for when the burn can/cannot be ignited
c) Briefing	**C** Information given to all resources, required daily
d) Organization and Equipment	**E** Identifies radio frequencies
e) Communication	**D** List of overhead and resources required for the burn
f) Public and Personal Safety, Medical	**G** Where ignition always begins, required daily
g) Test Fire	**B** Describes line to be built, snagging, hoselays, etc.

a) Ignition Plan	**G** Includes any rehab, reports, etc.
b) Holding Plan	**D** When a spot/slopover cannot be contained within next burning period
c) Contingency Plan	**C** Activated when out of prescription, objectives are not attained, etc.
d) Wildfire Conversion	**B** Placement of crews, engines, etc.
e) Smoke Management and Air Quality	**F** Collection and analysis of specific observations
f) Monitoring	**E** Identifies receptive areas that can be impacted by combustion
g) Post-burn activities	**A** How the unit will be fired

BehavePlus Exercise

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 feet), 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 feet with 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 understory 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 understory shrubs immediately post-burn.

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

PRESCRIPTION:

Weather/Fuels	Fuel Model 10
Temperature (degrees Fº)	40 – 90º
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? Explain. (Hint, use the hot end of the prescription, worst case scenario, for your BehavePlus run.) (short answer, 4 points)

No, mortality would be exceeded in the mature ponderosa pines.

7b. In meeting all the objectives would it make any difference whether it was a head fire or backing fire? Explain. (short answer, 4 points)

Per BehavePlus, mortality would be exceeded with either a backing or head fire.

Note: Instructor should discuss the limitations of the BehavePlus model when predicting mortality. A 'yes' answer can be accepted with an adequate explanation.

8. What was the predicted mortality with both fire spreads on the hot end of the prescription? (6 points)

   Mortality with a backing fire: **11%**

   Mortality with a head fire: **92%**

9. If a group of five ponderosa pines (8 inches DBH, 30 feet 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: **0.1 miles**

   Spotting distance with 20 mph winds: **0.2 miles**

   Spotting distance with 25 mph winds: **0.2 miles**

INSTRUCTOR NOTES:
Students can complete this exercise several ways. The only objective measurable with BehavePlus is the mortality objective. To answer all the questions, students need to run the "surface", "scorch", "mortality", and "spot" modules in the BehavePlus program. They should be run on the hot end of the prescription with both a head and backing fire spread. Modules can be run separately or together. If run separately, students must take some of the outputs from previous modules to use as inputs for future modules (for example, the "scorch" module outputs must be used for the "mortality" module). The answer key has the "surface", "scorch", and "mortality" modules in one run, and the "spot" module in a separate run.

Input Worksheet

Modules: SURFACE, SCORCH, MORTALITY

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Surface/Understory		
Fuel Model	10	
Fuel/Vegetation, Overstory		
Tree Height	100	ft
Crown Ratio	0.70	
Mortality Tree Species	pinpon	
Bark Thickness	1	in
Fuel Moisture		
1-hr Moisture	3	%
10-hr Moisture	4	%
100-hr Moisture	5	%
Live Herbaceous Moisture		%
Live Woody Moisture	75	%
Weather		
Midflame Wind Speed	10	mi/h
Direction of Wind Vector (from upslope)	0, 180	deg
Air Temperature	90	^{o}F
Terrain		
Slope Steepness	25	%
Fire		
Spread Direction (from upslope)	0, 180	deg
Notes		

Results for: Probability of Mortality (%)

Wind Dir	Spread Direction (from upslope)	
(upslope)	deg	
deg	0	180
0	92	11
180	11	86

Input Worksheet

Modules: SPOT

Input Variables	Input Value(s)	Units
Fuel/Vegetation, Overstory		
Canopy Height	100	ft
Tree Height	30.0	ft
Spot Tree Species	PINPON	
D.B.H.	8	in
Weather		
20-ft Wind Speed	15, 20, 25	mi/h
Terrain		
Ridge-to-Valley Elevation Difference	0	ft
Ridge-to-Valley Horizontal Distance		mi
Spotting Source Location		
Fire		
Number of Torching Trees	5	
Notes		

Results

20-ft Wind	Torch Tree Spot Dist
mi/h	mi
15	0.1
20	0.2
25	0.2

Ignition Scenario

You are the firing boss on the Badger Prescribed Burn (see map on next page). 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. Several pockets of white fir reproduction and a moderate amount of snags are scattered throughout the unit.

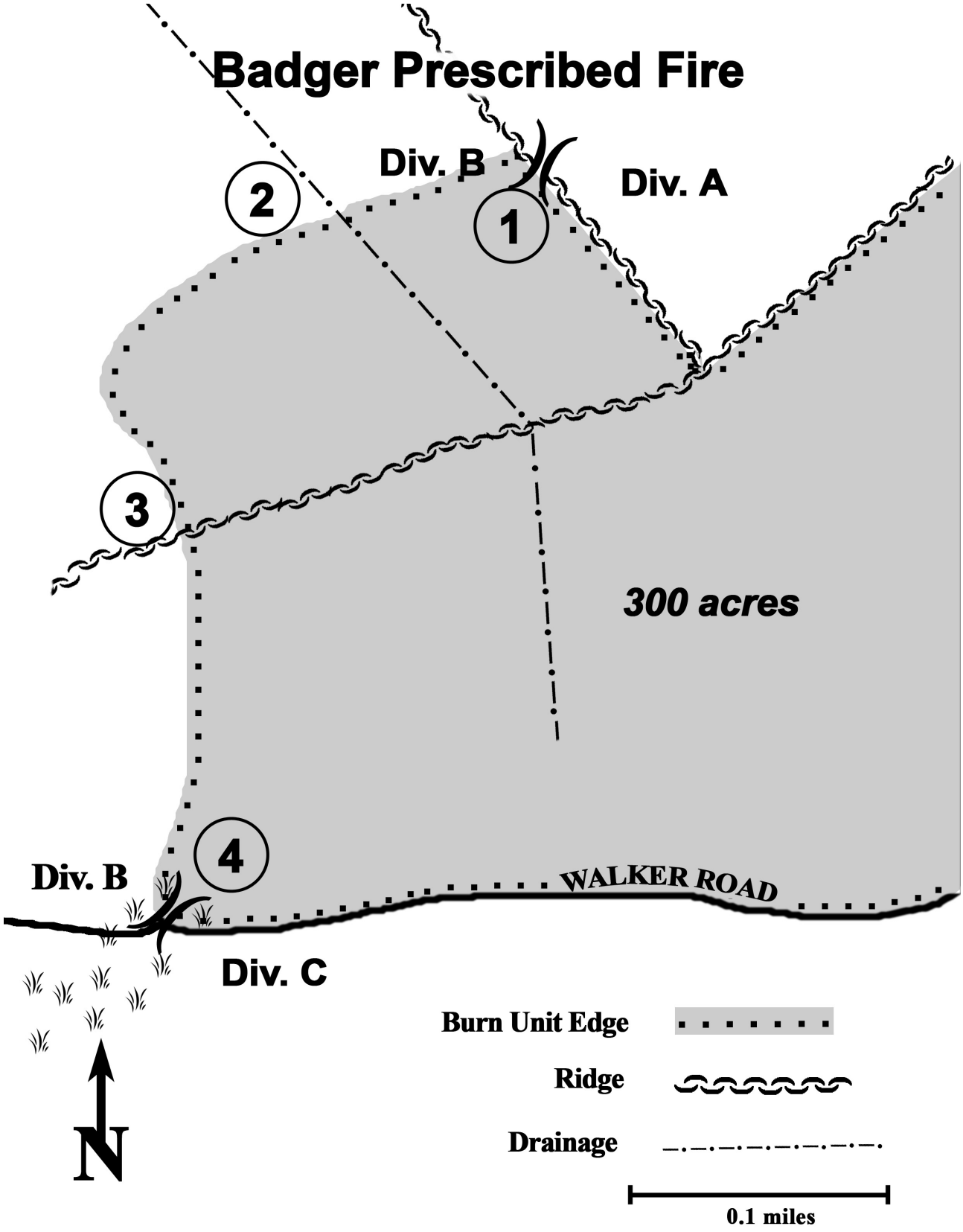
TOPOGRAPHY: Slopes average 30-40%. Some wet meadows are within the area.

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.


Badger Prescribed Fire
Div. B
Div. A
2
1
3
300 acres
4
Div. B
WALKER ROAD
Div. C
Burn Unit Edge
Ridge
Drainage
N
0.1 miles

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

No incorrect answer, but points one or three are the most logical answers.

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

No incorrect answer. Instructor must determine if students can logically justify their decision from the previous question. Items students could have considered:

- **Starting at the high points and treating the drainage like a saddle.**
- **Starting at the division break to coordinate with other resources.**
- **Anchoring the firing into a southeast wind.**
- **Others as they apply.**

12. List three things you should be observing during the test burn. (3 points)

Answer should include most of the following:

- **Fire behavior and ability to control.**
- **Attainment of burn objectives.**
- **Smoke dispersal.**

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 #1 is the closest to the control line.) (2 points)

a) 1-2-3
b) 3-2-1

15. What time of day would you begin blacklining? (2 points)

a) 0001-0600
b) 0600-1200
c) 1200-1800
d) 1800-2400

No incorrect answer. See next question.

16. Why did you choose the above time? (short answer, 2 points)

No incorrect answer. Instructor must determine if students can logically justify their decision from the previous question. Items students could have considered:

- **Firing at night or burning into higher relative humidity to facilitate holding by reducing spotting potential.**
- **Firing at night to avoid adverse afternoon winds.**
- **Firing in the day for safety and better visibility.**
- **Firing in the day to better meet fuel consumption objectives and white fir mortality.**
- **Firing in the day to meet work/rest guidelines.**
- **Others as they apply.**

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)

No incorrect answer. Instructor must determine if students can logically justify their decision from the previous question. Items students could have considered:

- **Are there an adequate amount of drip torches and fuel?**
- **Are there enough burners to meet the 150- to 200-foot blackline objective for the estimated length of line (figured to be between 0.3 – 0.4 mile based on the map scale)?**
- **Will the terrain dictate the need for more than one firing team?**
- **Are students answering the question as it pertains to firing or is their answer more about the holding?**
- **Others as they apply.**

Holding Scenario

You are the Holding Boss on Division B of the Big Creek Prescribed Fire (see map on next page). 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.

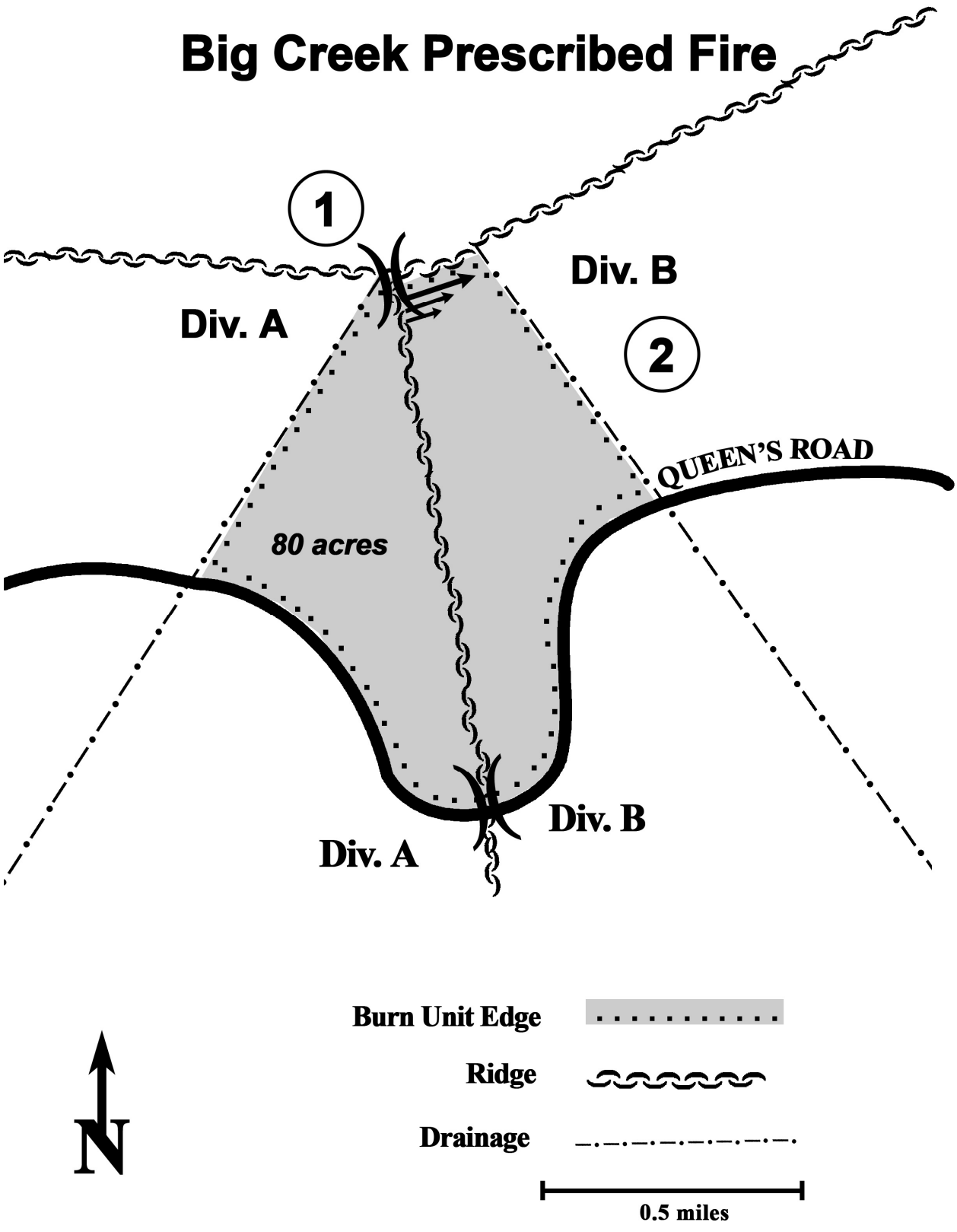
WEATHER FORECAST: Dry bulb - maximum 86, minimum 57. Relative humidity - maximum 79%, minimum 25%. Winds - ridge winds 5-7 with gusts up to 10 out of the northwest in the afternoon, decreasing towards sunset, and becoming calm at night. Midflame winds are typically influenced more by local topography.

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 turnaround 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 Division A Holding Boss.


Big Creek Prescribed Fire
1
Div. A
Div. B
2
QUEEN'S ROAD
80 acres
Div. B
Div. A
Burn Unit Edge
Ridge
Drainage
N
0.5 miles

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

No incorrect answer. Instructor must determine if students can logically justify their decision. Items students could have considered:

- **Is the handcrew adequate enough to spread over the flank considering the light fuels which will burn down quickly?**
- **Are two engines adequate enough to staff the hoselay, shuttle water, and patrol the road?**
- **Others as they apply.**

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?

No incorrect answer. Instructor must determine if students can logically justify their decisions. Student answer should focus primarily on the holding actions and not the firing, such as:

- **Using one engine to pump the hoselay.**
- **Using one engine to patrol the road and shuttle water.**
- **Using the handcrew the follow the burning down the flank.**
- **Others as they apply.**

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

- **Fine, flashy fuels**
- **High temperatures**
- **Working in drainages**
- **Spot fires**
- **Coordination with firing resources**
- **LCES**

21. The temperature is 86° and 1-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%

Input Worksheet

Modules: IGNITE

Input Variables	Input Value(s)	Units
Fuel Moisture		
1-hr Moisture	4	%
Weather		
Air Temperature	86	°F
Fuel Shading from the Sun	0	%

Notes

Run Option Notes

None

Results

Output Variable	Value	Units
Probability of Ignition from a Firebrand	77	%

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

- **Contact burn boss**
- **Suppress spots**
- **Flag location of the spot**
- **Contact firing boss to stop or adjust ignition**
- **Redeploy resources**
- **Consider indirect line location if suppression fails**
- **Continue patrolling for more spot fires**
- **Consider LCES**

Monitoring Questions

23. List six responsibilities a fire monitor (FEMO) can perform for a burn boss. (6 points)

- **Review the monitoring plan prior to implementation.**
- **Monitor, obtain, and record weather data.**
- **Monitor and record fire behavior data throughout the burn operations.**
- **Recon the burn unit/area assigned.**
- **Plot the burn area and perimeter on a map.**
- **Monitor and record smoke management information.**
- **Monitor first order fire effects.**
- **Provide monitoring summary of the fire.**
- **Provide fire behavior and weather information to burn personnel as appropriate.**

Source: RX Reference Guide, page 15

24. List one specific prescribed fire objective that the fire monitor can evaluate during the burn. (2 points)

- **Reduce 1-hour size class fuels 80-100%**
- **Achieve 40-80% mortality in the brush**
- **Let fire back the last 30 feet into the drainages to keep the intensity low.**

25. At 1400 hours the fire monitor reports an on-site (same elevation) dry bulb of 82°, RH of 27%, and northwest winds at 6 mph. What is the 1-hour fuel moisture? (3 points)

a) 4%
b) 7%
c) 8%
d) 12%

Source: Fuel moisture charts, reference fuel moisture = 4, corrected fuel moisture = 0 regardless of aspect.

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 2 – Operational Leadership in Prescribed Fire

Time 1.5 Hours

Objectives

1. Identify leadership positions in the prescribed fire organization.
2. Discuss organizational structure as it applies to prescribed fire.
3. Identify effective communication and leadership skills of the prescribed fire burn boss.

Strategy

This unit will help students identify leadership positions, responsibilities, and organizational structure in a prescribed fire organization. Critical leadership characteristics of the RXB are discussed. The intent is to spend time on student interaction and discussion to get input. The Impassable Bay Prescribed Fire Review is used to reinforce the unit objectives.

Instructional Methods

- Lecture, classroom discussion, and case study

Instructional Aids

- Computer with LCD projector and presentation software
- Flip charts and markers

Reference Materials

☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide

☐ Impassable Bay Case Study (**Note:** Students were to bring this case study to class; however, suggest printing extra copies to provide to students as needed. A copy of the case study is in Appendix C.)

☐ Additional agency manuals as appropriate (optional)

Exercise

- Osceola Ranger District Review - Impassable Bay Case Study (page 2.9)

Evaluation Method

The material covered in this unit is applied in the final exam.

Outline

I. Leadership Positions

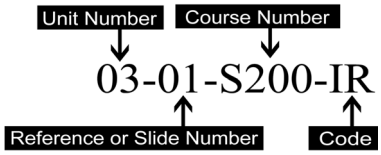
II. Identify Chain of Command

III. Communication and Leadership Skills

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 2 – Operational Leadership in Prescribed Fire

OUTLINE	AIDS & CUES
TITLE SLIDE.	02-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	02-02-RX301-PPT
I. LEADERSHIP POSITIONS	02-03-RX301-PPT
REFER TO "THE GUIDE" FOR A DETAILED LIST OF RESPONSIBILITIES.	
A. Agency Administrator (Line Officer)	
1. Project approval and general oversight.	
2. The Agency Administrator is defined as the line officer or designee.	
ASK STUDENTS, "WHO ACTS AS THE AGENCY ADMINISTRATOR FOR YOUR FOREST, DISTRICT, PARK, ETC.?"	
B. Prescribed Fire Burn Boss (RXB)	
1. Responsible for implementing the prescribed fire plan.	
2. Responsible to the Agency Administrator, prescribed fire manager, or fire management officer/local fire management organization.	

OUTLINE	AIDS & CUES
C. Firing Boss 1. Responsible for supervising and directing ground and aerial ignition operations. 2. The firing boss reports to the RXB.	02-04-RX301-PPT
D. Holding Specialist 1. Responsible for supervising and directing holding resources. 2. The supervisory position in charge of the holding forces reports to the RXB.	
E. Fire Management Officer (FMO) Responsible for fire program management activities on the unit.	02-05-RX301-PPT
F. Prescribed Fire Manager May be assigned during periods when multiple simultaneous prescribed fires are being conducted on the same unit.	
G. Fire Effect Monitor (FEMO) Responsible for collecting onsite weather, fire behavior, and fire effects information needed to assess whether the fire is achieving established resources management objectives.	

OUTLINE	AIDS & CUES
II. IDENTIFY CHAIN OF COMMAND	02-06-RX301-PPT
Prescribed fire organizations are similar to the Incident Command System (ICS). • The organization provides flexibility based on complexity. • The organizations flexibility helps maintain span of control.	
DISCUSS SLIDES 7 AND 8. GIVE EXAMPLES OF DIFFERENT ORGANIZATIONAL LEVELS.	02-07-RX301-PPT 02-08-RX301-PPT
ASK STUDENTS THE FOLLOWING QUESTIONS. USE OWN EXPERIENCE FOR ANSWERS:	
Why might the complexity of the burn not be directly related to the organizational structure of the burn?	02-09-RX301-PPT
For example, burning piles (low complexity) in the urban interface may prompt you to have a Prescribed Fire Burn Boss Type 2 (RXB2) with a small organizational structure.	
What is the recommended ratio to maintain span of control?	02-10-RX301-PPT
Why is it important for the RXB to maintain the chain of command and span of control?	
What flexibility does the RXB have in regards to changing the prescribed fire plan to meet their span of control needs? Who needs to know about these changes?	

OUTLINE	AIDS & CUES
III. COMMUNICATION AND LEADERSHIP SKILLS	02-11-RX301-PPT
A. Leadership	
DISCUSS EXAMPLES OF LEADERSHIP STYLES AS APPLIED TO PRESCRIBED FIRE OPERATIONS.	
1. Directing Use a directing leadership style to tell people what you want done, how you want it done, and when you want it done.	
2. Participating Use a participating leadership style to facilitate burn operations. Ask for recommendations and information, but you still make the decision.	
3. Delegating Use a delegating leadership style when you delegate problem solving and decisionmaking to burn personnel.	
What factors may influence the type of leadership style an RXB may need to use?	02-12-RX301-PPT
Possible answers: experience of subordinate personnel, adjacent values at risk, complexity of operation	
For leadership information and available courses go to: www.fireleadership.gov	

OUTLINE	AIDS & CUES
B. Communication	02-13-RX301-PPT
1. Pre-burn communication	
• Agency Administrator	
• Cooperators	
• Resource staff	
• Public Information Officer	
• Impacted local population	
SOLICIT ANSWERS FROM STUDENTS FOR THE FOLLOWING QUESTIONS:	
Why is pre-burn communication important for leadership?	02-14-RX301-PPT
What type of information may need to be communicated pre-burn?	
• Concerns (what types?)	
• Checklist (what should be on it?)	
Where would you find a list of items that need to be addressed and communicated? **Element 9 pre-burn considerations.**	02-15-RX301-PPT

OUTLINE	AIDS & CUES
2. Operational communication Briefing and directing project personnel within the chain of command.	02-16-RX301-PPT
SOLICIT ANSWERS FROM STUDENTS FOR THE FOLLOWING QUESTIONS: What dictates the topics and content delivered in a prescribed fire briefing? Should an RXB use the briefing format found in the IRPG?	
3. Post-burn communication • After Action Review (AAR) • Documentation • Reporting • Impacted local population	02-17-RX301-PPT
Is an AAR required on all prescribed fires? Does it need to be documented? Why is an AAR important for leadership? Where do you find the documentation and reporting requirements for each specific prescribed fire?	02-18-RX301-PPT

OUTLINE	AIDS & CUES
EXERCISE: Osceola Ranger District Review - Impassable Bay Case Study. Purpose: To identify positive and negative examples of leadership and communication. Format: Divide class into groups of 4-5 students Time: Exercise will take approximately 35 minutes. Allow 20 minutes for work and 15 minutes for discussion. Materials needed: Osceola Ranger District Review - Impassable Bay Case Study (ensure students have a copy of the case study; provide as needed) Instructions: 1. All students will read pages 1 – 8 of the case study. 2. Assign each group one additional reading assignment: • Planning (pages 8 – 13) • Implementation (pages 13 – 17) • Safety (pages 17 – 18) 3. Instruct groups to identify positive and negative examples of leadership and communication for their assigned section. 4. Have groups record their findings on a flip chart and present them to the class. **End of Exercise.**	02-19-RX301-PPT
REVIEW UNIT OBJECTIVES.	02-20-RX301-PPT

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 3 – Liability

Time 2.5 Hours

Objectives

1. Discuss the liability of private, county, and state agencies/employees who conduct prescribed fires.
2. Discuss liability of the federal government under the Federal Employees Tort Claims Act (amended 1988), for the actions of its employees who conduct prescribed fires.

Strategy

This unit discusses prescribed fire tort liability. The Federal Tort Claims Act (FTCA) applies only to federal employees; however, this lesson distinguishes the difference between federal and non-federal employees. If the class consists of non-federal employees, then the FTCA discussion is left to the discretion of the cadre.

The discussion regarding negligence and liability is applicable whether the project is a wildland fire used to achieve resource objectives or one that is intentionally set. It also applies whether the RXB comes in only to implement the project or is involved from start to finish.

Emphasize why an RXB should thoroughly document actions, conversations, and decisions made in the planning, coordination, implementation, and post-fire monitoring of a prescribed burn. Regardless of how time-consuming or inconvenient, documentation is critical to the success of any court action.

NOTE: The FTCA was amended in 1988 under the title "Federal Employees Liability Reform and Tort Compensation Act of 1988." For simplicity, the lesson continues to reference the law as the FTCA.

Instructional Methods

- Lecture, classroom discussion

Instructional Aids

- Computer with LCD projector and presentation software
- Flip charts and markers

Reference Materials

☐ Lowden Ranch Prescribed Fire Case Study (**Note:** Students were to bring this case study to class; however, suggest printing extra copies to provide to students as needed. A copy of the case study is in Appendix C.)

Optional Materials to Support the Unit

The following cases are not referenced in the course materials, but may be used when presenting the unit:

☐ Parsons v. U.S. 811 Supp, 1411 (E.D. Cal. 1992)

☐ McDougal v. U.S. Forest Service, 195 F. Supp2d 1229 (D.Or. 2002)

☐ Angnabooguk v. State of Alaska, 26 P.3d 447 (2001)

☐ United States v. Ellresse N. Daniels (criminal liability)

Exercise

Lowden Ranch Prescribed Fire Case Study (page 3.3)

Evaluation Method

The material covered in this unit will be applied and evaluated in the final exam.

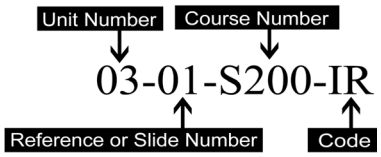
Outline

I. Liability of Private, County, and State Agencies
II. Liability of the United States and Federal Employees
III. What Does This Mean to the Prescribed Fire Burn Boss?

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 3 – Liability

OUTLINE	AIDS & CUES
TITLE SLIDE.	03-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	03-02-RX301-PPT
EXERCISE: Lowden Ranch Prescribed Fire Case Study	03-03-RX301-PPT
Purpose: To stimulate discussion on liability issues. Time: 45 minutes Format: Individually Materials needed: Lowden Ranch Prescribed Fire Review (ensure students have a copy of the case study; provide as needed) Instructions: 1. Have students read the Executive Summary (pages 6 – 7) and the Overview (pages 11 – 17). Briefly discuss their comments and questions. Note the timeframe of the event from test fire to wildfire declaration was only 2 hours 40 minutes. 2. Have students read the performance findings for Agency Administrator, Fire Management Officer, and Burn Boss (pages 18 – 20). Briefly discuss their comments and questions. 3. Have students read the prescribed fire plan review findings (pages 25 – 34). Discuss the report findings related to each section of the prescribed fire plan. **End of Exercise.**	

OUTLINE	AIDS & CUES
I. LIABILITY OF PRIVATE, COUNTY, AND STATE AGENCIES	03-04-RX301-PPT
A. Controlling Law	
The laws and regulations of the state in which the prescribed burn occurs will govern liability.	
Legal action against a local, county, or state agency (for damages resulting from an escaped fire) will likely be a tort claim based on negligence.	
Negligence may be based on acts or omissions.	
The elements of a negligent action are:	03-05-RX301-PPT
1. Duty	
It is the duty of every person to use reasonable care to avoid injury to another person (i.e., plaintiff) in any situation in which one could reasonably foresee that the failure to use such care may result in injury.	
Duty creates a standard of care or obligation to behave in a certain manner.	

OUTLINE	AIDS & CUES
2. Breach of duty Refers to an examination of whether the defendant's (local, county, or state agency) conduct conformed to the standard of care. The question asked is whether a reasonable person confronted with the same circumstances would have acted as the defendant did? If yes, then the defendant did not breach the duty of care. If no, then defendant did breach the standard of care. Note: The definition of a "reasonable person" is a hypothetical individual who exercises an ordinary degree of reason, prudence, care, foresight, or intelligence whose conduct, conclusion, or expectation in relation to a particular circumstance or fact is used as an objective standard. 3. Causation To be liable, the defendant's negligent act or omission must be a "substantial factor" in causing injury to the plaintiff. 4. Injury or damages Damages must be shown (no damages, no recovery).	

OUTLINE	AIDS & CUES
Types of damages: a. Property damages: The measure of value is generally the difference in value of the property before and after the negligent act. Damages may include lost profits. See McKay v. State of California, 8 Cal. App. 4th 937 (1992). b. Personal injuries: Damages are recoverable for medical costs, lost wages, and pain and suffering.	03-06-RX301-PPT
EXAMPLE OF NEGLIGENT ACTION: The RXB has a duty to use reasonable care in carrying out the prescription set forth in the prescribed burn plan. The RXB breached this duty by failing to consider the weather forecast, which predicted warming temperatures and high, gusting winds. Causation was established as this breach of duty was a substantial factor to the damage caused to plaintiff's property resulting from the escaped fire. Plaintiff proves damages in the amount of $50,000 to his property.	03-07-RX301-PPT
B. Violation of a State Statute Where the conduct of defendant which injures plaintiff also violates a state statute (depending upon the jurisdiction and nature of the statute), defendant may be conclusively presumed to have breached his duty. The traditional terminology for conduct which violates a state statute is "negligence per se."	03-08-RX301-PPT

OUTLINE	AIDS & CUES
A lawsuit based on negligence "per se" can be difficult to defend and the only issue may be the amount of damages to be awarded. To avoid a lawsuit based on negligence "per se", it is essential that the RXB be familiar with any state statute governing prescribed burning.	
EXAMPLE: State "A" has a statute requiring in part that a spot weather forecast be obtained before implementing a prescribed burn. The burn boss implements the burn under prescription, but fails to get a spot weather forecast. Plaintiff is injured in a car accident. Plaintiff claims that smoke from the burn was a contributing factor as it drifted across the highway causing poor visibility. The argument could be made that the RXB was negligent "per se" for violating a state statute, even if all weather conditions were within prescription.	03-09-RX301-PPT
Two examples of state statutes affecting prescribed burning: 1. <u>General Liability Statutes</u>: These statutes impose liability for damages caused by willful or negligent actions during the prescribed burn.	03-10-RX301-PPT
EXAMPLE: California Health and Safety Code section 13007 provides: Any person who personally or through another willfully, negligently, or in violation of law, sets fire to, allows fire to be set to, or allows a fire kindled or attended by him to escape to, the property of another, whether privately or publicly owned, is liable to the owner of such property for any damages to the property caused by the fire.	03-11-RX301-PPT

OUTLINE	AIDS & CUES
2. Strict Liability Statutes: Some states have adopted statutes of strict liability governing open burning. As such, the party or agency will be held liable regardless of fault for any fire which escapes off their property and causes personal injury or damage.	
EXAMPLE: Montana Code Ann. Section 50-63-103 (1991) provides: Any person who shall upon any land within this state, whether on his or on another's land, set or leave any fire that shall spread and damage or destroy property of any kind not his own shall be liable for all damages caused thereby, and any owner of property damaged or destroyed by such fire may maintain a civil suit for the purpose of recovering such damages. Any person who shall upon any land within this state, whether on his own or on another's land, set or leave any fire which threatens to spread and damage or destroy property shall be liable for all costs and expenses incurred by the State of Montana, by any forestry association, or by any person extinguishing or preventing the spread of such fire.	03-12-RX301-PPT
ASK STUDENTS, "DOES YOUR STATE HAVE A STRICT LIABILITY STATUTE?"	
C. Liability Regarding Independent Contractors	03-13-RX301-PPT
1. Independent contractor vs. employee Independent contractors are not controlled by those that employ their services.	

OUTLINE		AIDS & CUES
	The independent contractor contracts with the employer regarding the results to be accomplished, not regarding the manner or procedure for accomplishing and completing the work. By contrast, an employee works under the control of the employer. The general rule under tort law is that the landowner is not liable for the negligent actions of an independent contractor, because the landowner has no right to control the activity of the contractor. By contrast, the landowner is responsible for damages caused by the negligent actions of its employees.	
2.	Midyette v. Madison 541 So.2d 1315, (1989) Florida Supreme Court ruled that the use of prescribed fire was an "inherently dangerous activity." This ruling provided an exception to the general rule under tort law regarding independent contractors as discussed above.	03-14-RX301-PPT
	As such, the Midyette ruling:	03-15-RX301-PPT
	a. Imposed a nondelegable duty on the landowner to take proper precautions to prevent harm to third parties by the actions of independent contractors.	

OUTLINE	AIDS & CUES
b. Breach of the duty to take proper precautions renders the landowner negligent and liable. Liability caused by the negligence of the independent contractor is imputed to the landowner. c. Applies even if the landowner did not know, but should have known that the independent contractor was acting negligently. d. If not prepared (time and resources) to ensure that the independent contractor will not act negligently, it would be best to cancel or postpone the prescribed burn. e. To avoid the potential legal consequences of the Midyette ruling and the chilling effect it could have on implementing prescribed fire, at least seven Southeast states (Mississippi, Florida, Georgia, South Carolina, Alabama, Louisiana, Virginia) have passed state statutes setting forth negligence as the measuring stick for liability. By so doing, it is yet to be seen how these statutes will hold up under court scrutiny.	

OUTLINE	AIDS & CUES
FOR MORE INFORMATION ON PRESCRIBED FIRE LIABILITY IN THE SOUTHEAST, REFER STUDENTS TO "LEGAL ASPECTS OF PRESCRIBED BURNING" (SW pgs. 3.21 – 3.44; IG pgs. 3.27 – 3.50). **OPTIONAL: INSTRUCTOR MAY DISCUSS THE ARTICLE WITH STUDENTS.**	03-01-RX301-IR/SR
II. LIABILITY OF THE UNITED STATES AND FEDERAL EMPLOYEES Pre-1946, the general rule was that the Doctrine of Sovereign Immunity prevented persons from suing the government. In 1946, the Federal Tort Claims Act (FTCA) was enacted (amended 1988). The FTCA is a broad congressional authorization permitting lawsuits against the United States "for injury or loss of property, or personal injury or death caused by the negligent or wrongful act or omission of any employee of the Government while acting within the scope of employment, under circumstances where the United States, if a private person, would be liable to the claimant in accordance with the law of the place where the act occurred."	03-16-RX301-PPT

OUTLINE	AIDS & CUES
A. 28 U.S.C. Section 1346(b): The purpose of the FTCA was to treat the United States like a private, not public person (see Rayonier, Inc. v. United States, 353 U.S. 315, 317 (1957). Therefore, the United States waives its sovereign immunity under limited circumstances and may be held liable for:	03-17-RX301-PPT
1. Negligent and wrongful acts.	03-18-RX301-PPT
2. For employees acting within the scope of their employment.	
3. To the same extent as if the United States was a private person.	
4. According to the law of the place where the act occurred.	
B. FTCA, Element 1 - Negligent and Wrongful Acts To prevail, the suing party must prove the responsible government employee (i.e., RXB) was negligent or acted in a reckless manner. The RXB may be negligent for acts of commission and omission.	03-19-RX301-PPT
1. Commission - Directs acts by the RXB.	
2. Omission - Acts the RXB should have taken but did not, that a reasonable, prudent RXB in like or similar circumstances would have.	

OUTLINE	AIDS & CUES
C. FTCA, Element 2 - Acting Within Scope of Employment When either the United States or the government employee is sued for negligence, a factual determination must be made as to whether the employee was acting within the scope of employment when the injury claimed by the plaintiff occurred. The effect of the FTCA is to afford greater protection to federal employees from lawsuits based on negligent acts or omissions performed within the scope of employment. The Act allows the federal government to substitute itself as the party defendant. Upon certification by the U.S. Attorney General that the RXB was acting within the scope of employment, the U.S. will be substituted as the defendant and such proceedings will be moved to federal court if originally filed in state court. An employee may be named in a lawsuit even though he/she may not ultimately be held liable for damages. The exception is the violation of a constitutional right or an intentional tort. If an employee is ever named in a lawsuit for an action arising out of work performed for their agency, and/or subpoenaed, they need to immediately follow agency protocol for notification of their agency's attorney.	03-20-RX301-PPT

OUTLINE	AIDS & CUES
D. FTCA, Element 3 - To the Same Extent as if the United States were a Private Person In the state where the injury occurred, if a private person could be held negligent in the starting and/or the control of a prescribed fire, then the United States may also be so held.	03-21-RX301-PPT
EXAMPLE: Anderson v. U.S. 55 F.3d 1379 (9th Cir. 1995). In this case, the U.S. Forest Service (USFS) and the California Department of Forestry conducted a prescribed burn in the Cleveland National Forest. The next eight days, the fire burned within its perimeter. Sometime after the eighth day, the USFS lost control of the fire. The fire escaped from the national forest and destroyed property and homes in the Bedford Canyon area, near the City of Corona, in Riverside County, California. Anderson, who suffered damage, brought suit against the USFS in the amount of $11,500,000. The district court granted summary judgment to the United States on the theory that a private person would not be liable for their negligence. Thus, it reasoned, the United States was not liable either. The plaintiff appealed. The United States Court of Appeals (9th Cir.) found that under California Health and Safety Code sections 13007 and 13008, California law imposes liability on private landowners when they negligently set or fail to control fires on their property and injury results to others. As such, the Court held that as private landowners could be held liable, so could the United States. The case was reversed and remanded.	
E. FTCA, Element 4 - According to the Law of the Place Where the Act Occurred Liability is to be determined with reference to the laws of the state where the act or omission occurred (federal courts apply state law under the FTCA).	03-22-RX301-PPT

OUTLINE	AIDS & CUES
For example, the State of Florida and other southern states have adopted laws and regulations governing open burning. If a prescribed fire occurring on federally managed lands within the State of Florida escapes, then the laws and regulations from the State of Florida would govern and be applied by the federal court. This places the responsibility on the RXB who may develop and implement prescribed burns in several states, to be knowledgeable of state laws and regulations within the state for which they will be conducting prescribed burns.	
F. Exceptions to Waiver of Liability Under the FTCA. See 28 U.S.C. Section 2680:	03-23-RX301-PPT
1. <u>Due Care Used</u> 28 U.S.C. Section 2680(a) provides that the government is not liable for any claim based upon an act or omission of an employee of the government, who was exercising due care in the execution of a statute or regulation. This applies whether or not such statute or regulation is invalidated later. In other words, if the RXB is using due care in carrying out the law, and you are not negligent, then no liability exists even if the law is later determined to be invalid.	

OUTLINE		AIDS & CUES
2.	Discretionary Function Exception 28 U.S.C. Section 2680(a). While the FTCA provides that the United States is liable for torts in the same manner and to the same extent as private individuals, 28 U.S.C. Section 2674, of the Act carves out an exception, and thus retains government immunity for performances of discretionary functions or duties. This "discretionary function" provides that the government is not liable for "any claim based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused." 28 U.S.C. Section 2680(a). cited from Arizona Maintenance Co. v. U.S. 864 F.2d at 1499. The Supreme Court, in describing Congress' overall purpose, has thus said that the discretionary function exception "marks the boundary between Congress' willingness to impose tort liability upon the United States and its desire to protect certain activities from exposure to suit by private individuals." Berkovitz v. United States, 108 S. Ct. at 1958.	03-24-RX301-PPT

OUTLINE	AIDS & CUES
In application, the discretionary function exception is an affirmative defense available only to the government to dismiss lawsuits brought by private individuals under certain circumstances, even if the government action could be deemed negligent.	
The court applies a two step process for determining whether the discretionary function exception applies in a specific fact situation:	03-25-RX301-PPT
a. Step 1 Was the challenged act a matter of judgment or choice by the employee? If the answer is no, then the discretionary function exception does not apply. For example, where the employee must specifically adhere to a course of action set forth in a federal statute, regulation or policy, there is no employee discretion. If there is employee discretion, then the court applies the second step.	03-26-RX301-PPT

OUTLINE	AIDS & CUES
b. Step 2 Whether the exercise of that discretion is the kind the discretionary function exception was designed to shield, that is whether it is one grounded in "social, economic, and political policy." Berkovitz, 108 S. CT. at 1959.	03-27-RX301-PPT

EXAMPLE: Thune v. United States, 872 F. Supp. 921 (D. Wyoming. 1995). In 1989, the USFS, the Wyoming Game and Fish Department, and the Rocky Mountain Elk Foundation formed a plan to improve a cooperative wildlife habitat that targeted the elk population in the Bridger-Teton National Forest. Part of this plan called for prescribed fire to reduce sagebrush to increase herbaceous forage production for the elk.

On October 14, 1991, the USFS initiated a prescribed burn after receiving a favorable forecast. On October 15, 1991, fire was found still burning and was monitored. After wind and weather changes at or about 2:30 p.m., the fire was declared a wildfire and full suppression efforts ordered. A Type 2 team took over suppression responsibility sometime prior to October 16, 1991.

On October 16, the weather brought 40-50 mph winds and the incident commander (IC) ordered the area to be evacuated. At this time, Thune was working as a guide for game hunters under a license from the USFS. Mr. Thune had left much of his equipment at his base camp, which was destroyed by the fire in the late afternoon of October 16.

OUTLINE	AIDS & CUES
A Type 1 team took over the containment efforts and after several more days the "Dry Cottonwood Fire" as it became known, was finally stopped by a snow storm. A fire that was expected to burn 300 acres burned a total of 7,100 acres. Thune filed an administrative claim for $43,609.62, the amount he claimed he lost due to the fire. The U.S. denied the claim and Thune subsequently sued claiming damages for negligence in starting the fire and failing to contain it early. In its answer, the U.S. argued the claim was barred by the discretionary function exception to the FTCA. In determining whether the discretionary function exception was applicable, the court applied the two step test. First, was the challenged action a matter of judgment or choice by the employee? The court reasoned that the decision to proceed with the burn was based on many factors. The RXB had to consider the temperature, the wind, the weather forecast, the season and other considerations, including the broad policy behind the burns. Although burn plans had been developed, the ultimate decision of whether the burn should proceed was based on the judgment of the RXB. Similarly, the RXB and ultimately the Type 2 and Type 1 ICs used their judgment and experience in fighting the Dry Cottonwood Fire. The court stated that these kinds of judgments are exactly what the Supreme Court had in mind when it cautioned against "judicial second guessing." The court further explained that as “the protector of public lands the federal government and agents of the United States are entrusted with many discretionary decisions and these actions should not be hampered by hindsight judgments by judges and juries.”	03-28-RX301-PPT

OUTLINE	AIDS & CUES
As the court determined that the challenged action was a judgment of choice, the court then applied the second step of the test. Was the conduct based on considerations of public policy? The court ruled that the prescribed burn was implemented in furtherance of a policy of the USFS and the Wyoming Game and Fish Department to increase the population of elk. Therefore, the conduct of the RXB in starting the fire was clearly based on the considerations of public policy. Thus, the court granted the government's motion for Summary Judgment and dismissed plaintiff's claims for lack of subject matter jurisdiction.	
III. WHAT DOES THIS MEAN TO THE PRESCRIBED FIRE BURN BOSS?	03-29-RX301-PPT
INITIATE DISCUSSION ON PERSONAL LIABILITY INSURANCE. REFER STUDENTS TO THEIR HUMAN RESOURCE OFFICE FOR THE MOST CURRENT POLICY (REIMBURSEMENT, ETC.). A. Liability to Private, County, and State Agencies 1. Employer – Employee The general rule is that the employer is liable for injuries caused by the negligence or strict liability activities of employees as long as the tortuous acts occur within the scope of the employment.	

OUTLINE	AIDS & CUES
2. Scope of employment Acts which are so closely connected with what the employee was hired to do and so fairly and reasonably incidental to it that they may be regarded as methods, even though quite improper ones, of carrying out the objectives of the employment, are "within the scope of employment."	
B. Personal Liability – Private, County and State Employees If damage occurs to a third party, due in part to the negligence of the RXB, can the RXB be held personally liable? Many state and county agencies have indemnification provisions to protect their employees from personal liability. However, private, county and state employees need to check their own agency/state regulations and laws to see if they would be indemnified should they be named as a party in a lawsuit. Questions to ask (their employer): 1. Would I be indemnified (supported) by my agency should it be determined that I was negligent in the administration of a prescribed burn? 2. Do I hire my own attorney or is one appointed to represent me? 3. If one is appointed for me, who does the attorney work for (employee or state)?	03-30-RX301-PPT

OUTLINE	AIDS & CUES
4. How are conflicts of interest handled? Are you appointed separate legal counsel in case of potential conflict of interest between your legal interest and those of your agency?	
5. If you don't like the job your attorney is doing, can you replace the attorney?	
6. Do I have to pay any legal costs out of my own pocket?	
C. Liability to Federal Government	03-31-RX301-PPT
1. Employer – Employee	
Liability is governed by the FTCA. The Act makes the federal government, as opposed to the federal employee, the party defendant in such cases.	
The FTCA provides with limited exception, immunity to federal employees from personal liability for common law torts by making the FTCA the exclusive remedy for injury to, or loss of property, death, or personal injury caused by the negligent or wrongful acts or omission of a federal employee acting within the scope of his/her employment.	03-32-RX301-PPT

OUTLINE	AIDS & CUES
2. Case law Are there any published cases where the burn boss has been held to be personally liable for a negligent act? No. However, consider the following analogy where a legal argument could be made for personal liability: Federal employees are commonly warned not to make a detour in a government vehicle, especially to conduct some action outside of any authorized duties. The rationale is to avoid a situation where the employee may be found to have acted outside the scope of employment and not be covered by the FTCA. By applying this analogy, could an RXB be held to have acted outside the scope of employment if he/she knowingly burns outside the authorized burn prescription? There would be many variables in making such a determination, but most likely the RXB would be covered by the FTCA. The analogy gets more complicated if the RXB knowingly and intentionally ignites an area that is outside the planned burn perimeter and not covered by the authorized burn plan. The rationale being that this was a totally unauthorized action outside the scope of the employee's duties.	03-33-RX301-PPT

OUTLINE		AIDS & CUES
	From discussions with attorneys in the Office of Regional Solicitor in Montana and The Office of General Counsel in Utah, it is their opinion that the RXB would not be held personally liable under this fact pattern. However, they stress there are no absolutes. Although there may not be definitive answers to such hypothetical situations, the RXB can avoid risking possible denial of certification by the Attorney General with corresponding personal liability, by following the parameters of an approved prescribed burn plan. If the prescribed fire burn boss has an issue with any components of the burn plan, then this must be resolved and documented prior to implementation.	
3.	Manager's liability Although there is no current case law in regards to personal liability of managers in implementing prescribed burns, all federal managers should be cautioned against assigning duties to employees who are not physically capable of carrying out orders, or not properly trained and qualified to agency requirements.	03-34-RX301-PPT

OUTLINE	AIDS & CUES
4. Independent contractors General rule: the government is not liable for the negligent acts of independent contractors. Although the Court in Midyette found prescribed burning to be an "ultra hazardous activity," the negligent acts of the independent contractor are not imputed to the federal government (as they are for private, county, and state agencies). It must be shown that the federal government was negligent; it either gained knowledge of the dangerous situation and failed to halt or remove the danger, or should have known about the danger. If the federal agency is not prepared to ensure the independent contractor will not act negligently, then it would be in the best interest of the government to cancel or postpone the prescribed burn. 5. Documentation Documentation is key to any legal defense in court and critical to justifying your actions. One of the consistent mistakes made by the RXB is the lack of documentation as to the decisions made and why.	

OUTLINE	AIDS & CUES
Throughout the planning and implementation process, the RXB needs to clearly document all decisions and actions taken. At a minimum, the burn boss should document the following: • Unit log describing and documenting who was there, what was done, when and why it was done, etc. • All required checklists in prescribed fire plan filled out. • Weather and fire behavior observation and forecasts. • Pre-burn work documentation. During pre-burn preparation, document conversations with resource specialist, supervisor(s), the public, and other federal, state and local agencies. Without documentation, it is unlikely that two, three, or four years later you will recall the steps, actions, and decisions made which will justify your actions. Stating that you "think you did it" or "I usually do that" or "it is my practice to so do it" will not be convincing to a judge/jury.	
REVIEW UNIT OBJECTIVES.	03-35-RX301-PPT

LEGAL ASPECTS OF PRESCRIBED BURNING

by

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INTRODUCTION

For forest management reasons, the private and industrial landowner may find prescribed burning to be a desirable silvicultural practice. But, what are the legal ramifications? Prescribed burning may be legally or illegally performed and may subject the landowner to almost unlimited civil liability and possibly criminal sanctions. Before engaging in prescribed burning activities, the responsible party should be acquainted with essential legal requirements as well as his potential liability toward third persons.

COMPLIANCE WITH THE MISSISSIPPI AIR AND WATER POLLUTION CONTROL LAW

A. The Mississippi Air and Water pollution Control Commission

The Mississippi Air and Water Pollution Control Law, passed in 1966 by the Mississippi legislature[1], was prompted by the passage of numerous Federal acts which dealt with the pollution of the nation's air and water. This law created and established the Mississippi Air and Water Pollution Control Commission composed of 11 members appointed to serve staggered terms. The Commission is an administrative agency charged with the responsibility for general supervision of the administration and enforcement of the Mississippi Air and Water Pollution Control Law. It also has the authority to promulgate rules, regulation and orders necessary for the administration and enforcement of the law[2].

B. Prescribed Burning Regulations

Section 3.7, Reg. APC-S-1, deals with open burning of all types. This regulation prohibits the production or emission of dense smoke and the burning of commercial or industrial waste. However, an exception is granted for fires intentionally set for recognized forestry practices provided certain prerequisites are met.

The first prerequisite requires permission to burn to be obtained from the Mississippi Forestry Commission. Permission is acquired when the landowner contacts the County Forester. Information elicited usually includes the time, date and place of burning, a description of the area to be burned, and the method of burning. Permission may be oral or written. If the County Forester or his representative approves, a burning permit number will be issued to the requesting party.

The second requirement is the burning must occur between one hour after sunrise and one hour before sunset. Burning may be permitted at other times if the Mississippi Forestry Commission determines there is reasonable assurance that atmospheric and meteorological conditions in the area of the burning will allow good diffusion of air pollutants.

The third condition deals with starter or auxiliary fuels. Such fuels used in prescribed burning may consist of dried vegetation or of petroleum derived fuels of the gasoline, kerosene or fuel oil types, or a combination of these fuel types. Starter or auxiliary fuels which cause excessive visible emission, such as rubber tires, etc., are prohibited[3].

C. Sanctions for Violation of regulations

Compliance with regulations issued by the Mississippi Air and Water Pollution Control commission is mandatory. Any person found by the commission of violating any of the provisions of the act, or any rule, regulation, written order of the commission, or any condition or limitation of a permit is subject to a penalty of not less than $50 and not more than $5,000 for each violation[4]. No one is subject to the penalty unless a hearing is first conducted and the penalty is assessed and levied by the commission. Appeals from the imposition of a penalty may be taken to the Chancery Court. Each day a violation occurs is deemed to be a separate and additional violation. Other judicial remedies, such as injunctions, may also be utilized by the Commission[5].

In addition to the monetary penalty and other judicial remedies, a violator whose unlawful acts cause the death of fish or wildlife is liable to the state for an amount equal to the sum of money reasonably necessary to restock waters or replenish wildlife. Such additional amount may be recovered by the Commission on behalf of the state in a civil action.

LIABILITY OF INDIVIDUAL ENGAGED IN PRESCRIBED BURNING ACTIVITIES

A. Statutory Law on Negligent Burning Activities

The Mississippi statute provides,

> "If any person shall set on fire any lands of another, or shall wantonly, negligently, or carelessly allow any fire to get into the lands of another, he shall be liable to the person injured thereby, not only for the injury to or destruction of buildings, fences, and like, but for the burning an injury of trees, timber, and grass, and damage to the range as well; and shall moreover be liable to a penalty of $150 in favor of the owner."[(7)]

B. Negligence

The individual who engages in prescribed burning operations is held to the legal standard of the reasonable prudent man. If a person acts as a reasonable prudent man would act under the circumstances, then he is not negligent and is not held pecuniarily liable for his actions. However, if the conduct of a person falls below that of the reasonable prudent man, then he is negligent and liable to the injured party for damages resulting from such negligence.

In determining what conduct is or is not negligent, the nature of the conduct will be analyzed. The jury, as the ultimate finder of fact, will decide whether or not the conduct is negligent. Reasonableness of the conduct in light of all the surrounding circumstances will be determined. Put another way, a person is not negligent if he has exercised ordinary care and caution in his conduct[8]. It is often difficult to determine what conduct is negligent.

C. Selected Mississippi Cases

In the case of Wofford vs. Johnson[9], Holliday, an employee of the defendant Johnson, using a bulldozer pushed up several piles of brush and set one pile on fire at 3:00 p.m. on March 23, 1964. The pile was approximately 30 feet in diameter and about 152 feet from the woods on Johnson's land. The burning pile and woods were separated by a stretch of green rye grass. The fire was not checked that night. The next morning Holliday observed Johnson's woods burning but made no effort to control the fire. Johnson was informed of the fire but made no effort to control it. The fire spread to Wofford's property where it burned over 682 acres causing extensive damage. The weather conditions for that time of the year were very dry.

The court, finding for the plaintiff Wofford, held that when an owner of property or his employee sets a fire on his own property for a lawful purpose, he is not liable for damage caused by the spread of the fire to the property of another unless he was negligent in starting or controlling the fire. The court found that the measure of diligence required was ordinary care. Ordinary care was defined as such care, caution and diligence as a prudent and reasonable man would exercise under the circumstances to prevent damage to others. Such care must be used in setting the fire and in keeping it or preventing its spread. The duty of ordinary care is commensurate with the danger reasonably to be anticipated and is dependent on circumstances in the particular case[10].

In Robinson vs. Turfit[11], the court stated that the gist of fire trespass was negligence. In determining what action is negligence, the court held that many factors must be considered. Some of these factors include conditions and circumstances surrounding the guarding of the fire to prevent its spread; the number and magnitude of the fires; the condition of the soil and amount of litter; the state of the weather; the direction and force of the wind; and relative situation and exposure of the property of the plaintiff. Other factors to consider would be the type of fuel in the fire, the number of firefighters available, and the type and amount of equipment available for controlling the fire.

In Wilson vs. Yazoo and M.V.R. Co.[13], the court held that in addition to actual damages caused by the negligence of the defendant, the plaintiff was also entitled to recover the statutory penalty of $150.

Statutory Law on Grossly Negligent Burning Activities

The Mississippi Statute states,

> "....Provided, however, if any person recklessly or with gross negligence causes fire to be communicated to any woods, meadow, marsh, field or prairie, not his own, he shall be guilty of a misdemeanor and shall, on conviction, be fined not less than $20 nor more than $500, or imprisoned in the county jail not more than three months, or both, in the discretion of the court."[14]

D. Gross Negligence

Gross negligence is the lack of even slight care. Here, the conduct of the individual falls far below the conduct of the reasonable prudent man[15]. Gross negligence may also be defined as "the intentional failure to perform a manifest duty in reckless disregard of the consequences as affecting the life or property of another."[16]

One found grossly negligent in conducting his burning activities will be held liable for any damages caused by his gross negligence. He is also subject to criminal prosecution for a misdemeanor.

LEGAL RELATIONSHIP BETWEEN EMPLOYER AND EMPLOYEE

The landowner or person engaging in burning activities must be aware that sometimes acts of his employees may subject him to vicarious liability. Vicarious liability is the liability of one individual, without any wrongful conduct on his part, for the wrong of another. Under the doctrine of "respondeat superior", the employer is liable for the negligent acts of his employee, if such negligent acts occurred while the employee was acting within the scope of his employment. An employee is a person employed to render services to an employer. The employer retains the right to control the employee in the method of rendering services.

The essential feature of the employer/employee relationship is that the employer has the right to control the physical activities of the employee, as well as the manner of accomplishment of the employment duties. Scope of employment means the work the employee is engaged in is the type he was hired to perform during the hours he was hired to perform it in[17]. Thus, the landowner, whose employees are negligent in conducting prescribed burning activities, may be held vicariously liable for the negligent acts of his employees, if such employees were acting within the scope of their employment when the negligence occurred.

The doctrine of "respondeat superior" and its application to burning activities is well illustrated in Gloster Lumber Company vs. Wilkerson[18]. In this case, employees of Gloster Lumber Company were burning a tract of land. The fire crossed over onto the land of the plaintiff and burned over 50 acres. The employees of Gloster Lumber Company were found negligent in their control of the fire, and as a consequence the employer, Gloster Lumber Company, was held vicariously liable for the damages caused by their negligence. The court also held their negligent employees liable[19].

It is also worthy to note that an employer cannot protect himself from liability by imposing safety rules on his employees or by giving his employees specific and detailed orders to proceed with their work in a careful manner.

The doctrine of "respondeat superior" is not limited to negligent torts. The employer may be held liable for intentional torts of the employee when the intentional torts are reasonably connected with the employment, and are within the scope of employment[20].

THE INDEPENDENT CONTRACTOR

An employee is differentiated from an independent contractor in that, although the independent contractor works for the employer, the latter has no right to control the contractor in the method or mode of accomplishing the work. The independent contractor contracts with the employer only regarding the results to be completed - not regarding the manner or procedure for accomplishment of the work.

The independent contractor is usually paid a negotiated sum for the entire job, while the employee is paid an hourly wage. Although the completed job must conform to certain specifications, the method of performance is entirely within the discretion of the contractor. Also, the independent contractor usually possesses a higher degree of skill or expertise that the employer does not have. While the independent contractor usually owns his own business and uses his own tools, the employee generally depends on the employer to furnish these things[21].

The paramount purpose for distinguishing between the employee and the independent contractor is that the previously discussed doctrine of "respondeat superior" applies to the former but not the latter. Therefore, the employer will generally not be held liable for negligent or intentional wrongs committed by an independent contractor unless ultra-hazardous activities are engaged in. The courts have not defined prescribed burning as an ultra-hazardous activity. However, if the employer is negligent, the hiring of an independent contractor will not insulate him against liability. If the employer is negligent in choosing the contractor, or in giving him proper instructions or in failing to stop unnecessarily dangerous activities which he observes, the employer may be held liable for his own negligence[22]. Thus, while it is advantageous to employ independent contractors, there are limitations.

METHODS FOR DECREASING CHANCES OF LIABILITY

Suing has become very popular. One only need to read a local newspaper to realize that suing is big business and will continue to be so. Judgments exceeding a million dollars are not uncommon. One engaged in almost any type of business should recognize that he can be sued, and if the suit is successful, perhaps be faced with financial disaster. Obviously, the best way of avoiding being sued, and possibly being held liable for damages, is to prevent situations from occurring which would expose one to liability.

The following suggestions are given to minimize liability situations for the landowner or other individuals engaged in prescribed burning practices:

(1) Comply with the Air and Water Pollution Control Act.

(2) Carry an adequate amount of public liability insurance.

(3) Learn the law. One should study the various statutes, cases and regulations which directly or indirectly relate to prescribed burning operations.

(4) Before engaging in burning activities, study the overall situation - the weather conditions, the amount of fuel, the number and experience of personnel, the amount and type of equipment, the size of the tract to be burned, the relative location of the tract, etc. Consider recommendations made by the Mississippi Forestry Commission.

(5) Remember the reasonable prudent man standard. Realize that your activities may be closely scrutinized by a jury, and the jury may view the reasonable prudent man standard differently than you.

(6) When employees are involved, ensure they are competent and understand their duties and responsibilities. Employ experienced personnel when feasible. Carry adequate amounts of workmen's compensation insurance.

(7) Employ independent contractors when possible to avoid application of the "respondeat superior" doctrine. Insist that independent contractors carry an adequate amount of liability insurance and workman's compensation insurance.

(8) If a claim arises, do not make any voluntary statements or admissions against interest. Seek the advice of counsel.

SUMMARY

Firm answers to legal liability questions are difficult to find in prescribed burning activities. Precedent cases are few. The reasonable man standard is elusive of clear definition. Fact situations vary tremendously from one case to another. Although the courts have not expressly stated, the trend appears to be toward strict liability in prescribed burning activities. Perhaps there is truth in the old saying, "Fire and smoke are the responsibility of the burner - no matter where they go." Obviously, reasonable caution should be the watch word of the prescribed burner.

Footnotes

[1]Miss. Code Ann., sec. 49-17-1 thru 49-1743 (1972).

[2]Id:, sec. 49-17-7 (1972).

[3]Miss. Air and Water Pollution Control Comm., Air Quality Regulations, Reg. AFC-S-1, sec. 3.7(a) (Jan. 1978).

[4]Miss. Code Ann., sec. 49-17-43 (1972).

[5]Id., sec 49-17-33 to 49-17-43 (1972).

[6]Id., sec. 49-17-43 (1972).

[7]Id., sec. 95-5-25 (1972).

[8]W. Prosser Handbook of the Law of Torts, sec. 31, at 124-6 (2nd ed. 1955) [hereinafter cited as Prosser].

[9]250 Miss. 1 (1964).

[10]Id. at 4.

[11]192 Miss. 160 (1942).

[12]Id. at 165.

[13]192 Miss. 424'(1942).

[14]Miss. Code Ann., sec. 97-17-13 (1972).

[15]Prosser, sec. 33, at 148.

[16]H. C. Black, Black's Law Dictionary, 1185 (4th ed. 1955).

[17]Prosser, sec. 33 at 148.

[18]118 Miss. 289 (1918).

[19]1d.

[20]Prosser, Wade and Schwartz, Torts, 682-2 (6th ed. 1976).

[21]W. Schantz, The American Legal Environment, 401-5 (1984).

[22]Prosser, Wade and Schwartz, supra note 20 at 687-8; Prosser, sec. 64 at 357-9.

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LIMITING LEGAL LIABILITY

UNDER THE

MISSISSIPPI PRESCRIBED BURNING ACT OF 1992

by

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LIMITING LEGAL LIABILITY

UNDER THE

MISSISSIPPI PRESCRIBED BURNING ACT OF 1992

A. INTRODUCTION

Prescribed burning is one of the most cost-effective tools the landowner and professional forester have in forest management. It is often the cheapest, most effective means of vegetation control, wildlife habitat improvement, site preparation for regeneration, and wildfire prevention.

Yet, even with these advantages the use of prescribed burning is becoming more difficult. To a large degree this is due to landowner and practitioner concerns over liability exposure when using fire. In addition, the Smoke Management Regulations of the Clean Air Act have limited the number of acceptable burning days. This concern and the regulations have almost eliminated the use of prescribed fire in certain areas.

Because of this threat to the use of prescribed fire, a number of states have passed "Prescribed Burning Acts." The Mississippi Legislature did so during the 1992 Session. This act, entitled the "Mississippi Prescribed Burning Act", has codified prescribed burning as a landowner property right. It recognizes prescribed fire for its benefits to society, the environment, and the economy of Mississippi. In addition, it outlines the steps that the landowner and practitioner must follow to minimize their liability when using prescribed burning for forest management.

B. THE NEW MISSISSIPPI STATUTE

The new Mississippi statute[1] on prescribed burning is divided into five sections. Each section addresses unique policy and legal issues.

Section One. This section provides the citation of the new law as the "Mississippi Prescribed Burning Act."

Section Two. (1) The application of prescribed burning is a landowner property right and a land management tool that benefits the safety of the public, the environment and the economy of Mississippi. Pursuant thereto, the Legislature finds that:

(a) Prescribed burning reduces naturally occurring vegetative fuels within the wildland areas. Reduction of the fuel load reduces the risk and severity of major catastrophic wildfire, thereby reducing the threat of loss of life and property, particularly in urbanizing areas.

(b) Most of Mississippi's natural communities require periodic fire for maintenance of their ecological integrity. Prescribed burning is essential to the perpetuation, restoration and management of many plant and animal communities. Significant loss of the state's biological diversity will occur if fire is excluded from fire-dependent systems.

(c) Forest lands constitute significant economic, biological and aesthetic resources of statewide importance. Prescribed burning on forest land prepares sites for reforestation, removes undesirable competing vegetation, expedites nutrient cycling, and controls or eliminates certain forest pathogens.

(d) The state manages hundreds of thousands of acres of land for parks, wildlife management areas, forests and other public purposes. The use of prescribed burning for management of public lands is essential to maintain the specific resource values for which these lands were acquired.

(e) Proper training in the use of prescribed burning is necessary to ensure maximum benefits and protection for the public.

(f) As Mississippi's population continues to grow, pressures from liability issues and nuisance complaints inhibit the use of prescribed burning.

(2) It is the purpose of this act to authorize and promote the continued use of prescribed burning for ecological, silvicultural, and wildlife management purposes.

COMMENTS:

Our new law recognizes prescribed burning as a landowner property right. This is a milestone, since prescribed burning has had no designation. The legislature has legally and morally placed its stamp of approval on prescribed burning activities. Prescribed burning has been acknowledged by legislative *fiat* for the benefits to society it achieves, namely, the safety of the public, the environment, and the economy of the state.

The statute verifies the importance of prescribed burning activities for the reduction of naturally occurring vegetative fuels, which if allowed to accumulate unchecked, could lead to catastrophic wildfires endangering life and property.

Of particular significance is the fact that our legislature recognizes the importance of biological diversity in the ecosystem of Mississippi. Ecological integrity is stressed with prescribed burning being essential to the perpetuation, restoration, and management of many plant and animal communities. Prescribed burning is viewed as being important to prepare forest lands for reforestation, for the removal of undesirable competing vegetation, for promoting nutrient cycling, and the control or elimination of forest pathogens.

To ensure maximum benefits and protection of society, proper training for those who use prescribed burning is necessary. Proper training is defined and discussed in Section Three.

As the population of the state grows and more pressure is placed on natural resources, more lawsuits are likely to occur from prescribed burning activities. These liability issues may inhibit the use of prescribed burning. A chilling effect on prescribed burning could occur. This act forthrightly states that its purpose is to authorize and promote the continued use of prescribed burning, but it also promotes its future use for ecological, silvicultural, and wildlife management purposes.

Section Three: "As used in this section unless the context requires otherwise:

(a) 'Prescribed burning' means controlled application of fire to naturally occurring vegetative fuels for ecological, silvicultural and wildlife management purposes under specified environmental conditions and the following of appropriate precautionary measures which cause the fire to be confined to a predetermined area and accomplishes the planned land management objectives.

(b) 'Certified prescribed burn manager' means an individual or county forester who successfully completes the certification program approved by the Mississippi Forestry Commission.

(c) 'Prescription' means a written plan for starting and controlling a prescribed burn to accomplish the ecological, silvicultural and wildlife management objectives."

COMMENTS:

Now, everyone knows what prescribed burning means! This easily understood definition of prescribed burning clarifies the type of activities within which prescribed burning falls.

The Mississippi Forestry Commission has established a certification program for individuals desiring to become a "certified prescribed burn manager." The requirements to attain certification prescribed burn manager status are as follows:

1. An individual must successfully complete all components of the Prescribed Burning Short Course sponsored by the Department of Forestry at Mississippi State University.

   or

   An individual must successfully complete a training course or courses comparable to the short course and pass a final exam developed for the short course. The qualifications of the instructors, the subject matter presented and the time allotted to each subject must be reviewed and approved by the Mississippi Forestry Commission.

2. Any individual who has successfully completed the prescribed burning short course presented in 1987 or later session will be considered a certified prescribed burn manager upon the March 1, 1993 effective date of the Mississippi Prescribed Burning Act. Individuals who successfully completed the short course prior to 1987 will be considered a certified prescribed burn manager if they complete or have competed training on smoke management (which included a screening system on managing smoke) and provide documentation of such training to the Forestry Commission.

   or

   Any individual that has successfully completed a training course prior to the March 1, 1993 effective date of the Prescribed Burning Act which the Forestry Commission approves as being comparable to the currently required short course.[2]

   All materials for certification by means other than the MSU Prescribed Burning short course should be submitted to the Chief, Forest Protection Division of the Mississippi Forestry Commission.

Under the authority of the Act, the Mississippi Forestry Commission has promulgated guidelines for the prescribed burn prescription. The minimum requirements for information that a prescribed burn prescription will contain are as follows:

1. Personal information to include:
   a. Name of property owner
   b. Owner's mailing address
   c. Owner's phone number
   d. Same information (above) on the individual preparing the plan and/or executing the burn.
   e. Date prescription was prepared

2. Stand Description to include:
    a. County in which site is located
    b. Location to 40#, section, township and range
    c. Number of acres to be burned
    d. Type and size of overstory
    e. Type and size of understory
    f. Fuel type
    g. Topography

3. Management objective of the burn

4. Pre-burn information to include:
    a. Estimate of needed manpower and equipment
    b. Firing techniques to be used
    c. List of areas around site that could be adversely impacted by smoke from the burn.*

    *As delineated by the smoke management screening system contained in "Voluntary Smoke Management Guidelines for Mississippi," a Mississippi Forestry Commission publication, or "A Guide to Prescribed Fire in Southern forests," U.S. Forest Service Technical Publication R8-TP11.

5. Range of Desired Weather to include:
    a. Surface wind speed and direction
    b. Minimum and maximum relative humidity
    c. Maximum temperature
    d. Transport windspeed
    e. Mixing height
    f. Stagnation Index

The above information must be prepared before carrying out a prescribed burn and the date must be documented by having the plan notarized prior to the day of the burn.

In addition, the Mississippi Forestry Commission guidelines require that on the day of the burn the following information must be recorded on the written prescriptions:

1. Burning permit number and
2. Time of the day the permit is in effect.[3]

The above criteria for certification of prescribed burn managers and the minimum requirements for information that a prescribed burn prescription will contain are mandatory and carry the force of law behind them.

Section Four. "(1) No property owner or his agent, conducting a prescribed burn pursuant to the requirements of this section, shall be liable for damage or injury caused by fire or resulting smoke unless negligence is proven.
(2) Prescribed burning conducted under the provisions of this section shall:

(a) Be accomplished only when at least one certified prescribed burn manager is supervising the burn or burns that are being conducted;

(b) Require that a written prescription be prepared and notarized prior to prescribed burning;

(c) Require that a burning permit be obtained from the Mississippi Forestry Commission; and

(d) Be considered in the public interest and shall not constitute a public or private nuisance when conducted according to state air pollution statutes and rules applicable to prescribed burning.

(3) The Mississippi Forestry Commission shall have the authority to promulgate rules for the certification of prescribed burn managers and guidelines for prescribed burn prescription.
(4) Nothing in this section shall be construed to limit the civil or criminal liability as provided in Section 97-17-13 and Section 95-5-25, Mississippi Code of 1972."

COMMENTS:

Section 4 (1) emphatically establishes simple negligence as a basis for liability in prescribed burning activities in Mississippi. This new law conforms with the Mississippi trespass by firing woods statute (Section 95-5-25) which provides:

> "If any person shall set on fire any lands of another, or shall wantonly, negligently, or carelessly allow any fire to get into the lands of another, he shall be liable to the person injured thereby, not only for the injury to or destruction of building, fences, and the like, but for the burning and injury of trees, timber, and grass, and damage to the range as well; and shall moreover be liable to a penalty of $150 in favor of the owner."[4]

NEGLIGENCE

The individual who engages in prescribed burning operations is held to the legal standard of the reasonable prudent person. If a person acts as a reasonable prudent person would act under the circumstances, then that person is not negligent and will not be held pecuniarily liable for his actions. However, if the conduct of a person falls below that of the reasonable prudent person standard, then that person is negligent and is liable to the injured party for the injuries or damages directly resulting from such negligence. In determining what conduct is or is not negligent, the nature of the conduct with all surrounding facts and circumstances must be analyzed. The jury, as the ultimate finder of fact, will decide whether or not the conduct is negligent. The jury will determine the reasonableness of the conduct in relation to all of the surrounding circumstances. Said another way, an individual is not negligent if that person has exercised ordinary care and caution in his conduct. It is often difficult to determine whether the conduct is negligent.

Mississippi Negligence Cases

The number of Mississippi cases on prescribed burning is small. However, the few cases which have been decided offer some guidance.

In the case of Wofford vs. Johnson[5], Holliday, an employee of the defendant Johnson, pushed up several piles of brush with a bulldozer and set one pile on fire at about 3:00 p.m. on March 23, 1964. The pile was approximately 30 feet in diameter and about 152 feet from the woods on Johnson's land. The burning pile and woods were separated by a stretch of green rye grass. The fire was not checked that night. The next morning Holliday observed Johnson's woods burning but made no effort to control the fire. Johnson was informed of the fire but made no effort to control it. The fire spread to Wofford's property where it burned over 682 acres causing extensive damage. The weather conditions for that time of the year were very dry.

The court, finding for the plaintiff Wofford, held that when an owner of property or his employees sets a fire on his own property for a lawful purpose, he is not liable for damage caused by the spread of the fire to the property of another unless he is negligent in starting or controlling the fire. The court found that the measure of diligence required was ordinary care. Ordinary case was defined as such care, caution and diligence as a prudent and reasonable man would exercise under the circumstances to prevent damage to others. Such care must be used in setting the fire and in keeping it or preventing its spread. The duty of ordinary care is commensurate with the danger reasonably to be anticipated and is dependent on the circumstances in the particular case.[6]

In Robinson vs. Turfit[7], the court stated that the gist of fire trespass was negligence. In determining what action is negligence, the court held that many factors had to be considered. Some of these factors include: conditions and circumstances surrounding the guarding of fire to prevent its spread, the number and magnitude of the fires, the condition of the soil and the amount of litter, the state of the weather, the direction and force of the wind, and the relative situation and exposure of the property of the plaintiff[8]. Other factors to consider would be the type of fuel in the fire, the number of firefighters available, the experience and level of training of the firefighters, and the type and amount of equipment available for controlling the fire.

In Wilson vs. Yazoo and M.V.R.Co, the court held that in addition to actual damages caused by the negligence of the defendant, the plaintiff was also entitled to recover the statutory penalty of $150.[9]

The new law on prescribed burning reaffirms that the standard for liability in Mississippi for prescribed burning activities is negligence. The burden of proving negligence on part of the prescribed burner rests with the plaintiff to prove his case by the preponderance of the evidence. The new law specifically states that nothing in it shall be construed to limit the civil liability of Section 95-5-25, Mississippi Code Annotated (1972 as amended).

GROSSLY NEGLIGENT BURNING ACTIVITIES

The Mississippi statute states:

> "....provided, however, if any person recklessly or with gross negligence causes fire to be communicated to any woods, meadow, marsh, field or prairie, not his own, he shall be guilty of a misdemeanor and shall, on conviction, be fined not less than $20, nor more than $500, or imprisoned in the county jail not more than three months, or both, in the discretion of the court[10.]

Gross negligence is the lack of even slight care. Here, the conduct of the individual falls far below the conduct of the reasonable prudent person. Said another way, gross negligence is the intentional failure to perform a manifest duty in reckless disregard of the consequences affecting the life, health or property of another.

One found grossly negligent in conducting his prescribed burning activities may be held liable for damages caused by his gross negligence. That person would also be subject to criminal prosecution for the same acts of gross negligence. The new law specifically states that nothing in it is to be construed to limit the civil or criminal liability of Section 97-17-13, Mississippi Code Annotated (1972 as amended).

LEGAL RELATIONSHIP BETWEEN EMPLOYER AND EMPLOYEE

The prescribed burner must be aware that sometimes acts of his employees or agents may subject him to vicarious liability. Vicarious liability is the liability of one individual, without any wrongful conduct on his part, for the wrong committed by another. Under the doctrine of "respondeat superior," the employer is liable for the negligent acts of his employee, if such negligent acts occurred while the employee was acting within the scope of his employment. An employee is a person employed to render services to an employer. The employer retains the right to control the employee in the method and way of rendering services.

The essential feature of the employer/employee relationship is that the employer has the right to control the physical activities of the employee, as well as the manner of accomplishment of the employment duties. Scope of employment means the work the employee is engaged in is the type he was hired to perform during the hours he was hired to perform it in. Thus, the landowner, whose agents or employees are negligent in conducting prescribed burning, may be held vicariously liable for the negligent acts of his employees, if such agents or employees were acting within the scope of their employment when the negligence occurred.[11]

Gloster Lumber Company vs. Wilkerson[12] illustrates the doctrine of "respondeat superior" and its application to prescribed burning. In this case, employees of Gloster Lumber Company were burning off a tract of land. The fire crossed over onto the land of the plaintiff and burned over 50 acres. The employees of Gloster Lumber Company were found negligent in their control of the fire, and as a consequence the employer, Gloster Lumber Company, was held vicariously liable for the damages caused by their negligence. The negligent employees were also held liable.

It should also be noted that an employer cannot protect himself from liability by imposing safety rules on his employees or by giving his employees specific and detailed orders to proceed with their work in a careful manner. "Respondeat Superior" goes beyond negligent torts. The employer may be held liable for intentional torts of the employee when the intentional torts are reasonably connected with the employment and are within the scope of employment.

THE INDEPENDENT CONTRACTOR

An employee is distinguished from an independent contractor in that, although the independent contractor works for the employer, the employer has no right to control the contractor in the method, way, or mode of accomplishing and completing the work. The independent contractor contracts with the employer regarding the results to be accomplished - not regarding the manner or procedure for accomplishing and completing the work. The independent contractor is usually paid a negotiated, lump sum for the entire job, while the employee is normally paid a wage. Although the completed job must meet certain specifications, the method of performance is entirely within the discretion of the contractor. The independent contractor usually possesses a higher degree of skill or expertise that the normal employee does not have. The independent contractor usually owns his own business and uses his own tools, while the employee generally depends on the employer to furnish these items.

The purpose for distinguishing between the employee and the independent contractor is because the doctrine of "respondeat superior" applies to the employee but not the contractor. The employer will generally not be held liable for negligent wrongs of an independent contractor unless ultra-hazardous activities are conducted. The Mississippi courts have not defined prescribed burning as an ultra-hazardous activity. However, the Supreme Court of Florida in Madison vs. Midvett[13] held prescribed burning to be an inherently dangerous activity and ruled that the employer (landowner) was vicariously liable for a burning contractor's negligence. The court said that setting a fire clearly is a dangerous agency because it possesses an inherently dangerous propensity.

The standard established by the new Mississippi law sets forth negligence as the measuring stick for liability. By so doing, prescribed burning was not classified as an ultra-hazardous activity. The wording of the statute in Section 4 (1), "No property owner or his agent...." may or may not do away with the employee-independent contractor distinction. The answer to this question may be revealed through subsequent court decisions interpreting that portion of the new statute.

MANDATORY REQUIREMENTS

Four requirements are dictated by the new statute in Section 4 (2):

1. At least one certified prescribed burn manager must supervise the burn or burns being conducted;

2. A notarized, written prescription must be prepared before the prescribed burning takes place;

3. A burning permit must be obtained from the Mississippi Forestry Commission; and

4. The prescribed burning must be in the public interest, not be a public or private nuisance, and be conducted in conformity with applicable state air pollution statutes and rules.

These four requirements are mandatory and must be closely followed by the prescribed burner. Failure to follow them invites a lawsuit based on negligence "*per se*." Negligence "*per se*" is conduct which may be declared and treated as negligent conduct without any further argument or proof regarding the surrounding circumstances because there is a violation of a law or statute. One must be very careful to follow the requirements of the statute here. Failure to do so will make a lawsuit more difficult to defend.

Section Five. "This act shall take effect and be in force from and after March 1, 1993."

C. CONCLUSION

The new Mississippi statute on prescribed burning activities is welcomed by the forestry community. The act recognizes prescribed burning as an important property right and land management tool that greatly benefits society, the environment, and the economy of the state. Significant biological diversity is preserved by prescribed burning. The standards for prescribed burners are elevated with the certification requirement. This provision should place all the prescribed burners in the state on approximately the same competency level. This certification, coupled with the written, notarized prescription, should foster a higher degree of professionalism. Most importantly, prescribed burners now know that so long as they conduct prescribed burns in conformity with the requirements of the law, they will not be held liable for damage or injury caused by fire or resulting smoke unless negligence is proven.

The new law has clarified the liability issue and several other areas. It remains to be seen how the courts will treat independent contractors in relation to the "respondeat superior" doctrine. However, this new law brings with it the added responsibility of knowing what the law says and closely following it.

ENDNOTES

1. Section 49-19-307, Mississippi Code Annotated (1972 as amended).

2. Letter dated February 18, 1993 from Mr. James L. Sledge, Jr., State Forester for Mississippi.

3. Id.

4. Section 95-5-25, Mississippi Code Annotated (1972 as amended).

5. 250 Miss. 1(1964).

6. Id. at 4.

7. 192 Miss. 160 (1942).

8. Id. at 165.

9. 192 Miss. 424 (1942).

10. Section 97-17-13, Mississippi Code Annotated (1972 as amended).

11. Legal Aspects of Prescribed Burning, Forest Resources Management Technical Note, MTN-9F, Cooperative Extension Service, Mississippi State University, June 1989.

12. 118 Miss. 289 (1918).

13. 541 So2d 1315 (1989).

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MONTANA
GREAT FALLS DIVISION

HUGHES & SONS CATTLE CO., a corporation; G. C. TUCKER HUGHES; JANE C. HUGHES; G. C. TUCKER HUGHES, on behalf of and as next friend of RYAN J. HUGHES and SCOTT D. HUGHES, Minors,	)	
Plaintiffs,	)	NO. CV-91-131-GF
vs.	)	
THE UNITED STATES OF AMERICA,	)	FINDINGS OF FACT AND
Defendant.	)	CONCLUSIONS OF LAW

The above-entitled action, prosecuted under the Federal Tort Claims Act, 28 U.S.C. §§ 1346(b), 2671-2680, came on for trial before the court, the Honorable Paul G. Hatfield presiding, sitting without a Jury, on the 23rd day of June, 1992. Mr. Alexander Blewett III appeared as counsel on behalf of all named plaintiffs, and Mr. Robert J. Brooks appeared as counsel for the defendant, United States of America. The court, having heard and considered the testimony and evidence presented by the respective parties, enters the present findings of fact and conclusions of law in satisfaction of Fed.R.Civ.P. 52(a).

FINDINGS OF FACT

Based upon the testimony and evidence presented, I find it true that:

1. Hughes & Sons Cattle Co., one of the plaintiffs herein, is a Montana corporation. Plaintiff, G. C. Tucker Hughes, is the president of Hughes & Sons Cattle Co., and resides on a ranch 14 miles south of Stanford, Montana, with his wife Jane C. Hughes, and their two minor sons, Ryan J. Hughes and Scott D. Hughes.

2. Defendant United States of America operates the United States Forest Service as part of the Department of Agriculture.

3. In October, 1990, the Forest Service prepared and implemented a burning plan for the Levis and Clark National Forest, Judith Ranger District. At the time, the Judith Ranger District was experiencing one of its driest falls ever. According to the Billings Weather service, September, 1990, was the driest September on record. In addition, the area received no significant precipitation in October, and the precipitation was below normal for November.

4. On November 6, 1990, the Forest Service set fire to approximately 10 slash piles in cutting block six of the Bear Park timber sale area, Judith Ranger District, approximately 20 miles south of Stanford. Shortly thereafter, the slash fires spread into nearby timber due to the extremely dry conditions and changing weather. As a result, the Forest Service began "mopping up" operations in the area. The mopup work continued intermittently from November 6 through November 23, 1990.

5. On November 12, 1990, a fire, hereinafter referred to as "Fire A", was found burning in a slash pile in cutting block six near the Sage Creek road. Forest Service personnel extinguished Fire A and, thereafter, continued mopup operations on the fire from November 12 until November 23, 1990.

6. On November 19, 1990, another fire, hereinafter referred to as "Fire B", was found burning in a slash pile approximately 45 feet northeast of the location of "Fire A." Forest Service personnel extinguished Fire B.

7. On November 22, 1990, at approximately 5:00 a.m., a hunter, Guy Halvorson, came upon a small fire approximately 25 feet north of the location of Fire B and approximately 14 feet from Sage Crook Road. Halvorson stomped out the fire and buried the fuel remnants of the fire in a shallow pit.

8. On November 23, 1990, Forest Service personnel observed fire activity in the area where Fire B had originally been located. The Forest Service personnel subsequently worked on suppressing and mopping up the fire activity. Despite the presence of strong winds in the area, the Forest Service personnel left the area at approximately 3:00 p.m. on the afternoon of November 23, 1990.

9. Approximately six hours later, high winds fanned embers that had apparently been smoldering in the area where Halvorson had buried the fuel remnants. The embers were fanned into flame and subsequently spread to ignite an adjacent forested area, resulting in the forest fire denominated the Turkey Fire.

10. At approximately 9:30 p.m., three hunters, Ronald Halvorson, Milo Halvorson, and Carl Kananen, observed a large glow coming from the direction of cutting block six. From their vehicle parked on Sage Creek road, the three men watched as the fire advanced upslope (eastward) from a spot alongside the road--and near the spot where Guy Halvorson had buried the fuel remnants of the fire the previous morning.

11. Kananen reported the fire on his mobile phone to the Grass Range 911 operator. Kananen testified the wind was so strong that it had blown several trees over.

12. The fire burned approximately midway up the slope when the extremely high winds caught it and drove the fire to the northeast into the tree line at the far end of cutting block six. By approximately 10:00 p.m., the fire had burned across cutting block six, with the high winds causing it to grow quickly in intensity.

13. The Turkey Fire spread to the plaintiffs' property causing damage, the extent of which remains to be determined in subsequent proceedings before this court.

14. The Forest Service had the capability, through the use of infra-red heat detection devices, "wet water" and other fire suppressants, and dozer equipment, to suppress the fires in cutting block six.

15. Nevertheless, the Forest Service made the decision from November 12, 1990, through November 23, 1990, to deliberately allow the burning of the excess forest material contained in cutting block six.

The following conclusions of law, insofar as they may be considered findings of fact, are so found by this court to be true in all respects.

Conclusions of Law

1. This court has jurisdiction of both the subject matter and parties to this action pursuant to the Federal Tort Claims Act, 28 U.S.C. § 1346(b), 2671-2680. Consequently, the liability of the United States of America for the purported negligent acts of the United States Forest Service, Department of Agriculture, is determined under the law of the State of Montana, in the same manner and to the same extent as it would be determined for a private individual under that same law. 28 U.S.C. § 2674.

2. Every person is responsible for injury to the person of another, caused by his negligence. Mont. Code Ann. § 27-1-701 (1989).

3. Negligence is the failure to use reasonable care. Negligence may consist of action or inaction. A person is negligent if he fails to act as an ordinarily careful person would act under the circumstances. Wheeler v. City of Bozeman, 232 Mont. 433, 757 P.2d 345 (1988).

4. Mont. Code Ann. § 50-63-103 (1991) provides:

> Any person who shall upon any land within this state, whether on his own or on another's land, set or leave any fire that shall spread and damage or destroy property of any kind not his own shall be liable for all damages caused thereby, and any owner of property damaged or destroyed by such fire may maintain a civil suit for the purpose of recovering such damages. Any person who shall upon any land within this state, whether on his own or on another's land, set or leave any fire which threatens to spread and damage or destroy property shall be liable for all costs and expenses incurred by the State of Montana, by any forestry association, or by any person extinguishing or preventing the spread of such fire.

5. Mont. Code Ann. § 76-13-122 (1991) provides:

> A person to whom a written permit is issued to set or ignite a fire within forest lands during the forest protection season shall comply strictly with the permit. The person who fails to comply with the permit, leaves the fire unattended, leaves the fire before it is totally extinguished, or negligently allows the fire to spread from or beyond the burning area defined by the permit is guilty of a misdemeanor. The department shall prescribe the form and substance of such permit.

6. In a negligence action, a plaintiff must prove four elements: (1) existence of a duty; (2) breach of the duty; (3) causation; and (4) damages. Kitchen Krafters v. Eastside Bank, 242 Mont. 155, 789 P.2d 567, 574 (1990), citing, Thornock v. State, 229 Mont. 67, 745 P.2d 324 (1987).

7. A statutory infraction may amount to negligence per se if plaintiff establishes (1) the defendant violated a statute in question; (2) the statute was enacted to protect a specific class of persons; and (3) plaintiff is a member of that class; plaintiff's injury is of the sort the statute was enacted to prevent; and (4) the statute was intended to regulate members of defendant's class. VanLuchene v. State, 797 P.2d 932 (Mont. 1990).

8. In the instant action, the court concludes the United States violated Mont. Code Ann. § 50-63-103 and 76-13-122, and, as a result, was negligent per se.

9. The court further concludes the United States was negligent in setting fire to the slash piles on November 6, 1990, without (a) considering the weather forecasts, which predicted warning temperatures and high, gusting winds or (b) performing any fuel moisture content analysis or energy release component analysis. In addition, the court concludes the United States was negligent in failing to use sufficient personnel and equipment to suppress the dozer slash pile fires in cutting block six.

10. Liability in a negligence action attaches if the plaintiff can establish (1) that the defendant's acts were a cause in fact of injuries; and (2) that the injury is the direct or indirect result, proximately caused by the negligent act. Kiger v. State, 245 Mont. 457, 802 P.2d 1248, 1250 (1990).

11. Causation is normally established by applying the "but-for" test. Kitchen Krafters, supra, 789 P.2d at 574. Under the "but-for" test, causation in fact is established simply by proving that the plaintiff's injury would not have occurred "but-for" the defendant's illegal conduct. Id.

12. In the present action, the court concludes the negligence of the United States was a "cause-in-fact" of the Turkey Fire and the resultant destruction of plaintiffs' property (see Kitchen Krafters, supra, 789 P.2d at 574).

13. To establish the existence of proximate cause, it must be shown that the consequences of the defendant's wrongful acts were reasonably foreseeable. Davis v. Church of Jesus Christ of LDS, 244 Mont. 61, 796 P.2d 181, 186 (1990). "(P)roximate cause is one which in a natural and continuous sequence, unbroken by any new, independent cause, produces injury . . . . ." Id., quoting, Young v. Flathead County, 232 Mont. 274, 757 P.2d 772 (1988). "New and independent causes" which are not foreseeable, are generally regarded as superseding events which break the chain of causation and absolve the defendant of liability. Id.; quoting, Kitchen Krafters, supra, 789 P.2d at 576.

14. Under Montana law, where the negligent conduct of an actor creates a condition of danger, he is not relieved of responsibility for damage caused to another merely because the injury also involved the later misconduct of a third party. See Giles v. Flint Valley Forest Products, 179 Mont. 382, 588 P.2d 535 (1979). Restated, an intervening cause does not relieve an actor from liability for his negligent acts where the intervening cause is one which the defendant might reasonably anticipate under the circumstances. Bissett v. DMI, Inc., 220 Mont. 153, 717 P.2d 545 (1986).

15. "By definition, a superseding, intervening event is an unforeseeable event that occurs after the defendant's original act of negligence. Its presence will generally serve to cut off liability on the part of the defendant." Sizemore v. Montana Power Co., 246 Mont. 37, 803 P.2d 629 (1990), citing, Kitchen Krafters, Inc. v. Eastside Bank of Montana, 242 Mont. 155, 789 P.2d 567 (1990). Consequently, the foreseeability analysis "requires the trier of fact to determine whether the consequences of a defendant's actions were reasonably foreseeable." Id. at 635-36.

16. In the present action, the court concludes the United States' negligence was a proximate cause of the Turkey Fire.

17. The court further concludes the United States has failed to establish, by a preponderance of the evidence, that any of the fires in cutting block six were set by arson.

18. Nevertheless, even if the fires in cutting block six were the result of arson, the act of arson would not be a superseding cause of the Turkey Fire so as to be the sole proximate cause of the plaintiffs' injuries. The United States possessed the means and capability to completely extinguish the fires in cutting block six yet chose to allow them to burn under its supervision.

19. The government's decision to allow the fires to burn necessarily involved a matter of discretion. However, the conduct of a government agency or employee is not immune from scrutiny as a "discretionary function" simply because it involves an element of choice -- "it must be a choice rooted in social, economic or political policy." Arizona Maintenance Co. v. United States, 864 F.2d 1497, 1504 (9th Cir. 1989).

20. If, in the exercise of its discretion, the government determines to undertake the provision of a particular service, it may be held liable under the "Good Samaritan" doctrine if (1) the government induces reliance upon the service and (2) by negligently performing the service creates a condition of danger (see Brown v. United States, 790 F.2d 199 (1st Cir. 1986), cert. denied, 479 U.S. 1058 (1987); Berkovitz v. United States, 486 U.S. 531, 538 n.3 (1988); Kennewick Irrigation District v. United States, 880 F.2d 1018, 1024-25 (9th Cir. 1989). Montana recognizes the "Good Samaritan" doctrine of negligence (see Love v. United States, 915 F.2d 1242, 1248 (9th Cir. 1989).

21. The United States has moved the court to dismiss plaintiffs' complaint, pursuant to Fed. R. Civ. P. 12 (b) (1), asserting the court lacks subject matter jurisdiction over the present controversy because plaintiffs' claims fall within the discretionary function exception to the FTCA, 28 U.S.C. § 2680(a). The court is unpersuaded by the government's argument in support of its motion, and hereby DENIES the same.

22. In this court's opinion, the United States is subject to suit under the FTCA for the damage to plaintiffs' property under the "Good Samaritan" doctrine of negligence (see Indian Towing Co. v. United States, 350 U.S. 61, 64-65 (1955); Love, 915 F.2d at 1248). Once the Forest Service exercised its discretion to burn the slash piles, it was obligated to use due care to make certain the fires stayed contained. Furthermore, it cannot be disputed that the Forest Service engendered reliance upon its fire suppression expertise on Forest Service lands and, as a result, was obligated to use reasonable care in suppressing the fires in cutting block six.

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 4 – Prescribed Fire Plan Evaluation and Pre-Burn Preparation

Time 6 Hours

Objectives

1. Demonstrate the ability to review and validate a prescribed fire plan.
2. Describe on and off-site preparation considerations that need to be conducted prior to implementing a prescribed fire.

Strategy

This unit includes an exercise that provides students with the opportunity to review a prescribed fire plan and evaluate a burn unit.

Instructional Methods

- Lecture, classroom discussion, group work, exercise.

Instructional Aids

- Computer with LCD projector and presentation software

Reference Materials

- ☐ Prescribed Fire Burn Boss Position Task Book
- ☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide

Optional Materials to Support the Unit

- ☐ Create an IAP to support lesson materials
- ☐ Appropriate ICS forms to complete an IAP

Exercise

- Site Evaluation and Technical Review. **To execute the exercise, the cadre must be thoroughly familiar with the method chosen and prepare all materials in advance (pages 4.11 – 4.27).**

Evaluation Method

The material covered in this unit will be applied and evaluated in the final exam.

Outline

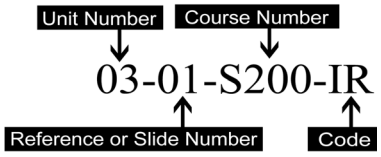
I. Technical Review and Validation

II. On and Off-Site Pre-Burn Considerations

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide
IR – Instructor Reference
HO – Handout
SW – Student Workbook
SR – Student Reference
PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 4 – Burn Plan Evaluation and Pre-Burn Preparation

OUTLINE	AIDS & CUES
TITLE SLIDE.	04-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	04-02-RX301-PPT
I. TECHNICAL REVIEW AND VALIDATION	04-03-RX301-PPT
As a prescribed fire burn boss, it is your responsibility to be very familiar with and understand the prescribed fire plan.	
Take time to validate the prescribed fire plan even though it may have been previously technically reviewed.	
Use the Technical Reviewer Checklist as a guide when reviewing and evaluating the burn plan.	04-04-RX301-PPT
REFER STUDENTS TO THE TECHNICAL REVIEWER CHECKLIST (SW page 4.7; IG page 4.9).	04-01-RX301-IR/SR
• Ensure all required elements are included in the prescribed fire plan.	
• Evaluate the risk and complexity analysis.	
• Use local experts to gain further insight into specific burn plan.	
• Ensure all elements are satisfactory.	

OUTLINE	AIDS & CUES
• If you disagree with the way the plan is written, work with staff to resolve issues.	
REINFORCE LIABILITY AND IMPORTANCE OF TECHNICAL REVIEW DOCUMENTATION.	
• An RXB3 is allowed to function as a prescribed fire plan preparer for a low complexity plan, but not as a technical reviewer.	04-05-RX301-PPT
Can the prescribed fire burn boss and the technical reviewer (signatory) be the same person? **(Yes)**	04-06-RX301-PPT
Can the preparer of the prescribed fire plan and the technical reviewer be the same person? **(No)**	
When the prescribed fire plan has been approved and signed, what changes can the prescribed fire burn boss make to the plan?	
Depends on the amount of flexibility written into the plan; any major changes require the plan to go through the amendment process.	
II. ON AND OFF-SITE PRE-BURN CONSIDERATIONS	04-07-RX301-PPT
Pre-burn considerations may be located and possibly repeated in several sections or elements of the prescribed fire plan.	
It is the RXBs responsibility to ensure all actions identified in the plan are satisfactorily completed prior to implementation.	

OUTLINE	AIDS & CUES
Prescribed fire plan elements that require pre-burn actions: A. Funding • Set up a system to track costs (this may be required in the project file). B. Prescription • Conduct on-site visit to validate burn is in prescription. • Gather fuel samples and weather observations. C. Scheduling • Set burn start date(s). D. Pre-burn Considerations and Weather • Obtain spot weather forecast prior to burn. • Assure all on and off-site considerations addressed in this element are complete. This may include line preparation, signage, etc. • This section may summarize tasks that are repeated in other burn plan elements. E. Briefing • Briefing schedule; prepare Incident Action Plan (IAP) (optional)	04-08-RX301-PPT 04-09-RX301-PPT

OUTLINE	AIDS & CUES
F. Organization and Equipment • Assign qualified personnel to overhead positions; order resources, equipment, and supplies.	
G. Public and Personnel Safety, Medical • Implement mitigations for identified safety hazards. • Pre-plan medical emergency evacuation locations.	04-10-RX301-PPT
INSTRUCTOR MAY DISCUSS ICS-215A OR RISK ANALYSIS.	
H. Test Fire • Identify location.	
I. Ignition (type) and Holding • Discuss and fine-tune plan with burn overhead (get everybody on the same page).	
J. Contingency • Verify resource availability with dispatch centers.	04-11-RX301-PPT

OUTLINE	AIDS & CUES
K. Smoke Management	
• Implement compliance and mitigation procedures with local air regulating agencies.	
• Ensure that prescribed fires which receive a National Ambient Air Quality Standards (NAAQS) Notice of Violation (NOV) are reviewed according to established guidelines.	The Guide
L. Monitoring	
• Ensure pre-burn monitoring is completed.	
DISCUSS TOOLS YOU HAVE USED TO COMPLETE ON AND OFF-SITE PRE-BURN CONSIDERATIONS (TO-DO LIST OR PRE-BURN CHECKLIST).	
EXERCISE: Site Evaluation and Technical Review	04-12-RX301-PPT
• **Method 1** (IG pages 4.11 – 4.15; SW pages 4.9 – 4.11)	04-02-RX301-IR/SR
• **Method 2** (IG page 4.16; SW page 4.12)	
• **Method 3** (IG pages 4.17 – 4.27; SW pages 4.13 – 4.16)	
REVIEW UNIT OBJECTIVES.	04-13-RX301-PPT

B: TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency specific job hazard analysis		
Appendix E: Fire Prediction Modeling Runs or Empirical Evidence		
Other		

S = Satisfactory **U = Unsatisfactory**

Recommended for Approval: _____ Not Recommended for Approval: _____

_____ _____ _____

Technical Reviewer Qualification and currency (Y/N) Date

□ **Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.**

Method 1: Local Burn Plan (actual live burn)

Exercise Preparation: This method requires an approved prescribed burn plan, the ability to visit the potential burn site, and a staff briefing. All safety considerations including travel and PPE must be met when planning a site visit. Use the checklist below to prepare for this method. The exercise instructions begin on the next page.

Checklist:

- ☐ Schedule a proposed burn date at least one week ahead to set the scenario for students to go through the pre-burn planning process.
    - Provide for flexibility on date of burn; however, try to burn on the last day of class.
    - Burning on a different day is acceptable as long as all the objectives of the class instruction have been met.
- ☐ Send a copy of the approved and signed burn plan to students prior to beginning of class.
- ☐ Have students develop an IAP prior to the burn.
- ☐ Prepare a briefing for students that explains the local issues and political concerns related to the implementation of the prescribed burn.
- ☐ Make arrangements and logistical concerns to travel to site.

Overview: Students review a prescribed fire burn plan for technical accuracy and implement a prescribed burn.

Time: 4 hours

Format: Small groups

Exercise Instructions:

1. Deliver a briefing to students that explains local issues and political concerns related to the implementation of the prescribed fire. Instructors can be in key positions, or other personnel can be used for this exercise. Suggested speakers: Agency Administrator, Fire Management Officer, biologists, recreation specialists, etc. (30 minutes)

2. Divide students into groups; assign a cadre member to each group to act as a coach. Instruct students to use the tasks in the Technical Reviewer Checklist (SW page 4.7; IG page 4.14) as a guide to review the prescribed fire plan. (30 minutes)

3. Instruct students to complete the Technical Reviewer Checklist for the local prescribed fire plan. Review and discuss students completed Technical Reviewer Checklist. Address any concerns with the prescribed fire plan. (30 minutes)

4. Groups will now travel to the burn site and do a pre-burn recon, hazard analysis, and risk management. Instruct groups to develop a list of items to be completed before the day of the burn. The coach should ensure groups are focusing on all pre-burn elements. (3 hours)

5. Pre-burn planning meeting:

   Have each group conduct an informal pre-burn operation meeting to discuss all tasks that need to be completed prior to the day of the burn. Coaches should ensure their group addresses all necessary issues and details such as risk hazard mitigation, ordering resources, coordination with smoke management, setting briefing time and location, test fire ignition location, last minute unit preparation, notifications, IAPs, etc. (30 minutes)

6. Pre-burn planning presentations:

   From the list below, assign each group elements of the prescribed burn plan. Ensure each group gives a 10-minute presentation to the class that includes a brief explanation of their assigned elements, special issues that need to be addressed, and tasks that need to be completed prior to the day of the burn. All group members should participate. The presentation should demonstrate a good understanding of the project and its complexity. The presentation should match the audience.

Group #	Elements
_____	Physical Description, Objectives, Funding, Complexity Analysis
_____	Prescription, Scheduling, Pre-Burn Considerations
_____	Organization and Equipment, Communication, Public and Personnel Safety
_____	Test Fire, Ignition Plan, Holding Plan, Briefing, Smoke Management
_____	Contingency Plan, Wildfire Conversion, Monitoring, Post-Burn Activities

7. Have coaches complete the Agency Administrator Go/No-Go Pre-Ignition Approval Checklist with their group (SW page 4.11; IG page 4.15). (30 minutes)

8. Review the day's activities with the entire class. Be sure to summarize the Technical Reviewer Checklist, the simulated pre-burn planning meeting, and the Agency Administrator Go/No-Go Pre-Ignition Approval Checklist. (30 minutes)

B: TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency specific job hazard analysis		
Appendix E: Fire Prediction Modeling Runs or Empirical Evidence		
Other		

S = Satisfactory **U = Unsatisfactory**

Recommended for Approval: _____ Not Recommended for Approval: _____

_____ _____ _____

Technical Reviewer Qualification and currency (Y/N) Date

□ Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

ELEMENT 2: AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? *Hints: amendments, seasonality.*
		Will all compliance requirements be completed? *Hints: cultural, threatened and endangered species, smoke management, NEPA.*
		Is risk management in place and the residual risk acceptable? *Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?*
		Will all elements of the Prescribed Fire Plan be met? *Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources*
		Will all internal and external notifications and media releases be completed? *Hints: Preparedness level restrictions*
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
FMO/Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

Method 2: Local Burn Plan (paper-based, no live burn)

Overview: This method can be used if weather conditions are unfavorable or conducting a live burn is not possible. Use the same instructions and forms used for Method 1; however, instructors can use an approved prescribed burn plan of their choice and visit the potential burn site. Again, consider safety and transportation.

Method 3: Virginia's Prescribed Fire Plan (paper-based, book example)

Exercise Preparation: This method uses the Virginia's Prescribed Fire Materials in Appendix D. The materials include a completed prescribed fire plan and PowerPoints that show still photos of the proposed Virginia's project site.

If desired, the cadre can replace the Virginia's Prescribed Fire Plan and support materials with locally produced material to better meet student needs. In this case, the course coordinator should ensure the local burn boss and Agency Administrator (delegate) is available during all class sessions. If local materials are used and a field trip/site visit is added, additional time and logistical considerations will need to be addressed by the course coordinator.

Use the checklist below to prepare for this method. The exercise instructions begin on the next page.

Checklist:

- ☐ Schedule a proposed burn date at least one week ahead to set the scenario for students to go through the pre-burn planning process.
- ☐ Laptop computer for each group. **NOTE:** Create a CD for each group that contains the Virginias Photopoints PowerPoints. Groups can use their laptop to view the PowerPoints to aid in their analysis.
- ☐ Print a copy of the "Prescribed Fire Plan" for each instructor.
- ☐ Print a copy of the "Prescribed Fire Plan" for each student.
- ☐ Optional: Tactical Decision Game (sand table)

Overview: Students review a prescribed fire burn plan for technical accuracy and implement a prescribed burn.

Time: 4 hours

Format: Small groups

Exercise Instructions:

1. Deliver the Staff Briefing (pages 4.21 – 4.22) to students by role playing the identified positions. Additional inputs may be created, but must be consistent with the Virginia's Prescribed Fire Plan. (30 minutes)

2. Divide students into groups; assign a cadre member to each group to act as a coach. Instruct students to use the RXB position task book to review the prescribed fire plan. (30 minutes)

3. Have students complete the Technical Reviewer Checklist (page 4.23) for the prescribed burn plan. When finished, review and discuss, and address any concerns with the prescribed burn plan. Below is a list of possible items students may find. (30 minutes)

    - Behave runs are completed using a 5% slope.
    - Helispots are not identified on the map.
    - Map does not show all roads.
    - Dozer lines need scraping.
    - Fuels reduction under power lines not completed.
    - Because resources are local the budget does allow for overtime and mileage.
    - Lat/Long for hospitals is somewhere in the Pacific Ocean.

- Fire Behavior Notes:

  – Manzanita is easily top killed with flame heights of 6-12 inches. The same flame heights will meet objectives for black oak litter consumption.

  – There is no objective to thin with fire. Although it sometimes occurs, punching holes in canopy over 20 feet tall is not desired.

  – Protection of snags and down logs is accomplished by using the relatively cool prescription. If snags and logs are consumed, they are generally replaced by mortality caused by passive tree torching. Over time, approximately 1% of the mature conifers will die using this prescription.

4. Use the Virginia's underburn photo log and map (pages 4.24 – 4.26) to present the PowerPoints to students. Have groups identify and discuss hazard analysis and do a risk mitigation for the project area. Groups should develop a list of items to be completed before the day of the burn. Coaches should ensure they are focusing on all pre-burn elements. (30 minutes)

5. Pre-burn planning meeting (either on-site or in classroom):

   Have each group conduct an informal pre-burn operation meeting to discuss all tasks that need to be completed prior to the day of the burn. Coaches should ensure their group addresses all necessary issues and details such as risk hazard mitigation, ordering resources, coordination with smoke management, setting briefing time and location, test fire ignition location, last minute unit preparation, notifications, IAPs, etc. (30 minutes)

6. Pre-burn planning presentations:

   Assign each group 1 - 2 elements of the prescribed burn plan. Have each group give a 10-minute presentation to the class that includes a brief explanation of their assigned elements, special issues that need to be addressed, and tasks that need to be completed prior to the day of the burn. All group members should participate.

   The presentation should demonstrate a good understanding of the project and its complexity. The presentation should match the audience.

Group #	Topics
_____	Physical Description, Objectives, Funding, Complexity Analysis
_____	Prescription, Scheduling, Pre-Burn Considerations
_____	Organization and Equipment, Communication, Public and Personnel Safety
_____	Test Fire, Ignition Plan, Holding Plan, Briefing, Smoke Management
_____	Contingency Plan, Wildfire Conversion, Monitoring, Post-Burn Activities

7. Have coaches complete the Agency Administrator Go/No-Go Pre-Ignition Approval Checklist (page 4.27) with their group. (30 minutes)

8. Review the day's activities with the class. Summarize the Technical Reviewer Checklist, the simulated pre-burn planning meeting, and the Agency Administrator Go/No-Go Pre-Ignition Approval Checklist. (30 minutes)

Staff Briefing

Fire Management Officer: Hi, my name is _____ and I am the Fire Management Officer on the High Sierra Ranger District. The Virginia's prescribed fire is a 2,000-acre underburn in ponderosa pine. I am assigning you to be the Burn Boss for this project. You can find most of the information you need in the prescribed fire plan, but I'd like to point out some specifics.

First, the control points on the burn are all drivable roads except for a short section of treacherous 4-wheel drive road that really isn't fit for Forest Service vehicles. A one-half mile of drivable dozer line is on the northwest flank.

The roads are 10S18 on the north, 10S02 on the south, 10S50 on the west, and 10S02E connected by the 4-wheel drive road to 10S18D on the east. Power lines are on the southern part of the burn running west to east. It is a 15kV line that ends at the Blue Canyon Work Center about a mile down canyon and east of the burn. The work center is the only customer on this section of the line.

An access road runs along the power lines. Access to the power line is on a small spur road that connects the 10S50 road and the 10S02 road. It is commonly referred to as the Gravel Pit road. The vegetation under the power lines has been hand cleared to bear clover (a continuous ground cover approximately one foot tall) and pine needles. A 15-foot diameter circle has been cleared to mineral soil around each pole.

The power lines are a big safety concern for us. On a past burn we had an incident where a tree that had been burning for several days fell across the lines. The power company billed us for the repairs. There is no way to guarantee it will not happen again. My main concern is the safety of the firefighters. Keeping them a safe distance from the lines is crucial.

The staff that is available to assist with the burn is very experienced. Many of them have been involved in previous burns on this unit. The district conducts several underburns every year and this is routine work for them. You will find the burn overhead is willing and ready to help with anything you need.

The equipment needed for the burn is identified in the burn plan. But I do want to point out that what's in the burn plan is the minimum you will need. If you feel you need more ignition or holding resources, even if it's just for a one-day assignment, it's your responsibility to order it. You have some sideboards with that; you cannot go over budget and your organization cannot become so large that it increases the complexity of the burn.

District Ranger: As the Burn Boss, you have the authority to order what resources you need, within reason, but we also have to manage a budget. You should start keeping track of the costs. I'm confident that there's enough money for this project to cover your needs for ignition, holding, and patrolling and that includes a reasonable amount of overtime. If there's any money left over we have a use for it. Don't feel like you have to spend the entire account.

Fire Management Officer: When it comes to smoke management there are some weather patterns that will shut down burn operations for a day or two. The canyon where the burn is located is a boxed end canyon. The top of the canyon is over a thousand feet higher than the burn itself. The normal slope winds will be up canyon during the day and down canyon at night. What you need to pay attention to is the upper air flow at the top of the canyon. Any smoke produced during the day with an easterly upper air flow will push smoke into the San Joaquin Valley.

Depending on the amount of smoke produced during the day, the down canyon flow coupled with an east wind will result with smoke in the valley by morning. This air basin has one of the worst air quality ratings in the United States. You do not want to smoke in the valley. You need to maintain a good working relationship with the Air Pollution Control District. Stay in daily contact with them throughout the duration of the burn.

We conduct large prescribed burns on the district every year. We have a close working relationship with the Air Pollution Control District and have developed standard operating procedures with them to accomplish our projects. At this time, why don't you take a look at the burn plan and go recon the burn on the ground. When you've had a chance to read the plan and see the burn, let's get together again and we can discuss the plan from your perspective.

End of staff briefing.

B: TECHNICAL REVIEWER CHECKLIST

PRESCRIBED FIRE PLAN ELEMENTS:	S /U	COMMENTS
1. Signature page		
2. GO/NO-GO Checklists		
3. Complexity Analysis Summary		
4. Description of the Prescribed Fire Area		
5. Objectives		
6. Funding		
7. Prescription		
8. Scheduling		
9. Pre-burn Considerations and Weather		
10. Briefing		
11. Organization and Equipment		
12. Communication		
13. Public and Personnel Safety, Medical		
14. Test Fire		
15. Ignition Plan		
16. Holding Plan		
17. Contingency Plan		
18. Wildfire Conversion		
19. Smoke Management and Air Quality		
20. Monitoring		
21. Post-burn Activities		
Appendix A: Maps		
Appendix C: Complexity Analysis		
Appendix D: Agency specific job hazard analysis		
Appendix E: Fire Prediction Modeling Runs or Empirical Evidence		
Other		

S = Satisfactory **U = Unsatisfactory**

Recommended for Approval: _____ Not Recommended for Approval: _____

_____ _____ _____

Technical Reviewer Qualification and currency (Y/N) Date

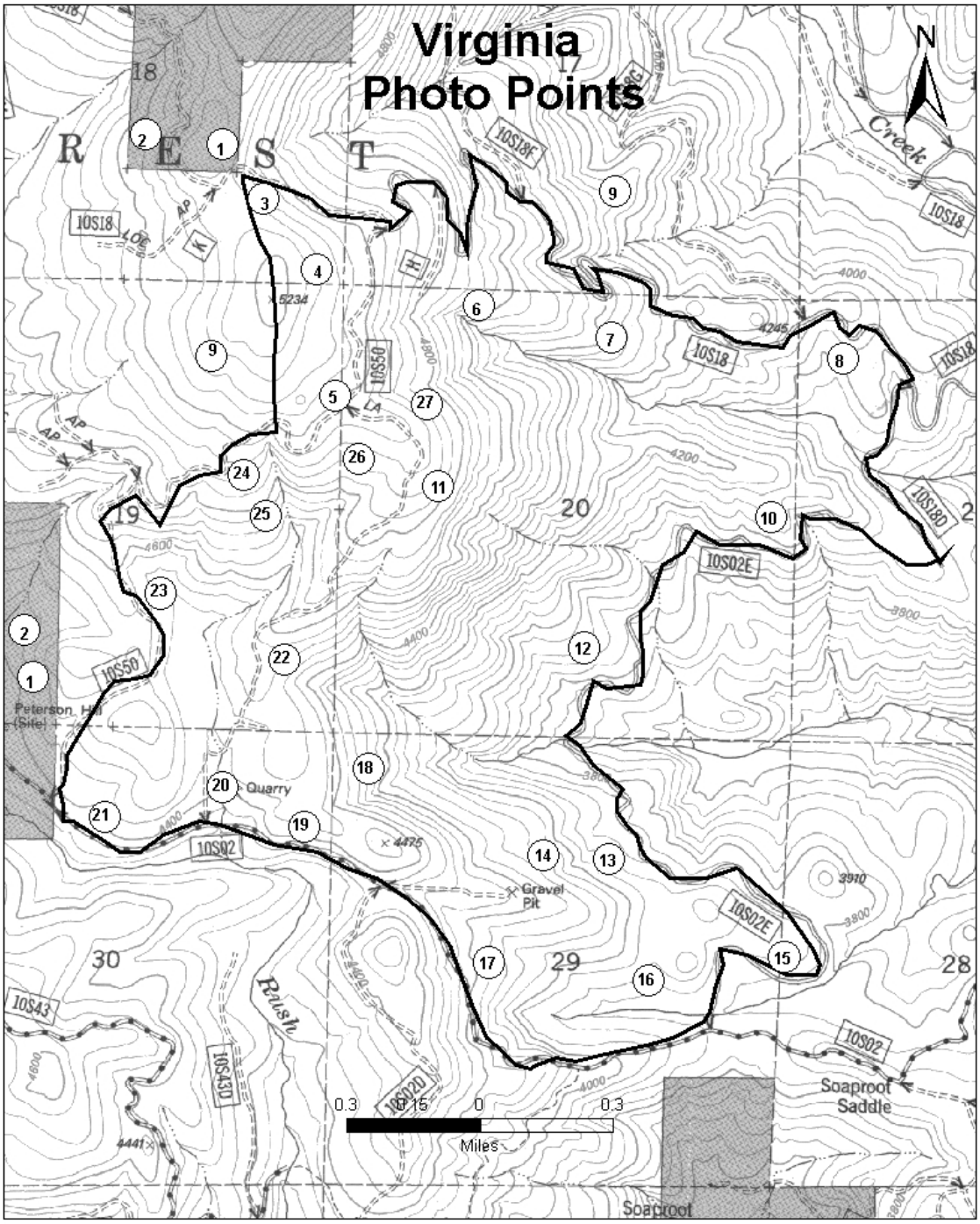
□ Approval is recommended subject to the completion of all requirements listed in the comments section, or on the Prescribed Fire Plan.

Virginia's Underburn Photo Log

(Use with the Photo Point Map on page 4.26)

PHOTO #	DESCRIPTION
1	Typical private residential site.
2	Typical fuels reduction work on private land.
3	Forest road 10S18 (control point) northwest corner of unit. Ground cover is bear clover.
4	Dead Manzanita skeletons top killed by previous RX fire. Prior to first entry the brush was so thick that the trees in the background were not visible.
5	Forest road 10S50 (control point) at junction with Quarry road.
6	Notice black oak intermixed with ponderosa pine and small Manzanita in the lower right.
7	Medium size black oaks killed by previous underburn. Open stand of young pines released by thinning and burning.
8	Small plantations, approximately 2 acres in size, created after thinning, burning, and herbicide treatments. Bear clover was sprayed to reduce competition to the pine, replace with grass.
9	Representative fuels outside of burn unit on Forest Service lands.
10	Manzanita intermixed with bear clover that has sprouted from seed scarified by previous RX fire.
11	Grey in background center is top killed brush, similar in size to the brush in the foreground.

12	Note re-growth of brush intermixed with top killed brush.
13	Power lines
14	Dog-haired thicket that was killed in previous RX fire. Note brush regeneration.
15	Black oaks in winter.
16	Dead brush skeletons to be consumed.
17	Green brush to be top killed. Dead skeletons to be consumed by next fire entry.
18	Dead brush skeletons to be consumed by next fire entry.
19	Green Manzanita not killed by first RX fire entry. Objective here is to top kill live brush and consume skeletons.
20	Quarry. Note power pole on top of rock.
21	Second entry burn will remove some of the dead standing trees and maybe kill a few more live ones.
22	Triple objective area. Remove dead fuels, top kill remaining live Manzanita, enhance black oak stand.
23	Objective – manage black oaks for wildlife habitat and Native American use.
24	Objective is to remove the dead and down, and the brush skeletons.
25	Large continuous rock outcropping
26	Large continuous rock outcropping
27	Large continuous rock outcropping


Virginia
Photo Points
N
R E S T
18
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20
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28
10S18
10S18F
10S50
10S02E
10S80
10S02
10S43
10S43D
10S20
Peterson Hill
(Site)
Quarry
Gravel
Pit
Rush
Creek
Soaproot
Saddle
Soaproot
0.3 0.15 0 0.3
Miles

ELEMENT 2: AGENCY ADMINISTRATOR GO/NO-GO PRE-IGNITION APPROVAL CHECKLIST

Instructions: The Agency Administrator's GO/NO-GO Pre-Ignition Approval is the intermediate planning review process (i.e. between the Prescribed Fire Complexity Rating System Guide and Go/No-Go Checklist) that should be completed before a prescribed fire can be implemented. The Agency Administrator's Go/No-Go Pre-Ignition Approval evaluates whether compliance requirements, Prescribed Fire Plan elements, and internal and external notifications have been or will be completed and expresses the Agency Administrator's intent to implement the Prescribed Fire Plan. If ignition of the prescribed fire is not initiated prior to expiration date determined by the Agency Administrator, a new approval will be required.

YES	NO	KEY ELEMENT QUESTIONS
		Is the Prescribed Fire Plan up to date? *Hints: amendments, seasonality.*
		Will all compliance requirements be completed? *Hints: cultural, threatened and endangered species, smoke management, NEPA.*
		Is risk management in place and the residual risk acceptable? *Hints: Prescribed Fire Complexity Rating Guide completed with rational and mitigation measures identified and documented?*
		Will all elements of the Prescribed Fire Plan be met? *Hints: Preparation work, mitigation, weather, organization, prescription, contingency resources*
		Will all internal and external notifications and media releases be completed? *Hints: Preparedness level restrictions*
		Will key agency staff be fully briefed and understand prescribed fire implementation?
		Are there any other extenuating circumstances that would preclude the successful implementation of the plan?
		Have you determined if and when you are to be notified that contingency actions are being taken? Will this be communicated to the Burn Boss?
		Other:

Recommended by: _____ Date: _____
FMO/Prescribed Fire Burn Boss

Approved by: _____ Date: _____
Agency Administrator

Approval expires (date): _____

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 5 – Pre-Burn Operations

Time 1.5 Hours

Objectives

1. Identify the required elements of a prescribed fire briefing.
2. Describe the importance of utilizing the Prescribed Fire Go/No-Go Checklist.
3. Identify test fire provisions and describe their purpose.

Strategy

This unit provides students with information about elements of a briefing, concepts of the Prescribed Fire Go/No-Go Checklist, and the importance of the test fire. The instructor should be prepared to provide examples of successful burns.

Throughout this unit, instructor may refer to the Lowden Ranch Prescribed Fire Review (from the liability unit) as it pertains to briefings, the Prescribed Fire Go/No-Go Checklist, and the test fire.

Instructional Methods

- Lecture, classroom discussion, case study

Instructional Aids

- Computer with LCD projector and presentation software

Reference Materials

- ☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide
- ☐ Optional: Lowden Ranch Prescribed Fire Review
- ☐ Optional: Prescribed Fire Lessons Learned–Escaped Prescribed Fire Reviews and Near Miss Incidents–Initial Impression Report (**Note:** Students were to bring this article to class; however, suggest printing extra copies to provide to students as needed. A copy of the article is in Appendix C.)

Exercises

There are no formal exercises associated with this unit.

Evaluation Method

The material covered in this unit will be applied and evaluated in the final exam.

Outline

I. Briefing Elements

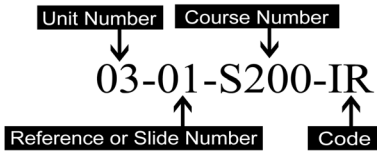
II. The Importance of Utilizing the Prescribed Fire Go/No-Go Checklist

III. Test Fire

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 5 – Pre-Burn Operations

OUTLINE	AIDS & CUES
TITLE SLIDE.	05-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	05-02-RX301-PPT
I. BRIEFING ELEMENTS	05-03-RX301-PPT
Ten briefing elements are required in the prescribed fire plan.	
Additional briefing elements may be added to account for issues such as aerial ignition. The format and topics covered are different than the format found in the IRPG.	
The RXB is responsible for addressing every item identified in the prescribed fire plan briefing element and ensuring all assigned personnel receive a briefing.	
A. Burn Organization and Assignments	05-04-RX301-PPT
• Chain of command.	
• Overhead positions and assigned personnel.	

OUTLINE	AIDS & CUES
B. Burn Objectives and Prescription • Identifies the purpose of the burn. • High and low limits for the environmental and fire behavior parameters (trigger points). • Separate prescriptions must be clearly identified and addressed (blacklining, aerial, etc.).	
C. Description of the Prescribed Fire Area • Use a good briefing map. • Address areas of special concern (critical holding points, high value areas, smoke receptors). • Review size and division assignments. • Cover the burn area and project boundary as necessary.	05-05-RX301-PPT
D. Expected Weather and Fire Behavior • Use spot weather or general forecast. • Brief analysis of how weather and other factors may affect fire behavior. • Relate current and expected weather and fire behavior to the prescription.	

OUTLINE	AIDS & CUES
E. Communications • Address special concerns (dead areas, repeater tones). • Identify tactical, command, and air-to-ground frequencies.	05-06-RX301-PPT
F. Ignition Plan • Proposed firing methods, techniques, sequences. • Safety issues. • Coordination with holding and other resources.	
G. Holding Plan • Resource assignments. • Holding, mop up, and patrol procedures. • Critical holding points.	05-07-RX301-PPT
H. Contingency Plan and Assignments • Identify trigger points to initiate contingency plan. • Briefly explain contingency plan operations.	

OUTLINE	AIDS & CUES
I. Wildfire Conversion • Who declares? How will it be communicated to assigned resources? • Who will be the incident commander? • Explain strategies and tactics.	05-08-RX301-PPT
BRIEFLY DISCUSS OPERATIONS/SUPPRESSION QUALIFICATIONS NEEDED FOR LEADERSHIP. (DOES THE RXB BECOME THE IC?).	
J. Safety and Medical Plan • Identify safety concerns and mitigations. • Specify emergency medical procedures.	
II. THE IMPORTANCE OF UTILIZING THE PRESCRIBED FIRE GO/NO-GO CHECKLIST Why is the Prescribed Fire Go/No-Go Checklist important? • Critical decisionmaking tool. • Required prior to implementing test fire. • Concurrence with overhead positions recommended. • A separate daily Go/No-Go checklist is required for each active day of ignition.	05-09-RX301-PPT
REFER STUDENTS TO THE PRESCRIBED FIRE GO/NO-GO CHECKLIST (SW page 5.7; IG page 5.9). REVIEW AND DISCUSS.	05-01-RX301-IR/SR

OUTLINE	AIDS & CUES
III. TEST FIRE	05-10-RX301-PPT
A. Test Fire Requirements	
Provisions for the test fire should be outlined in the prescribed fire plan.	
It is the responsibility of the RXB to:	
• Ensure all identified criteria are met and the results are recorded.	
• Ensure all pre-burn considerations are done, and assigned burn personnel and equipment are in place and notified prior to beginning test fire.	05-11-RX301-PPT
B. Required Factors	05-12-RX301-PPT
• Controllable	
• Representative location	
C. Purpose of the Test Fire	05-13-RX301-PPT
• Verify fire behavior characteristics	
– Allow test fire to burn for an adequate amount of time to observe actual fire behavior characteristics.	
– Factor in future forecasted conditions.	
• Verify smoke dispersion	
• Verify attainment of objectives	

OUTLINE	AIDS & CUES
D. Multiple Day Projects Evaluation of current active fire behavior in lieu of a test fire may provide a comparative basis for continuing and must be documented. If in doubt, initiate a separate test fire and evaluate results.	05-14-RX301-PPT
OPTIONAL: Review and discuss Prescribed Fire Lessons Learned–Escaped Prescribed Fire Reviews and Near Miss Incidents–Initial Impression Report. (Provide students a copy if needed.)	
REVIEW UNIT OBJECTIVES.	05-15-RX301-PPT

ELEMENT 2: PRESCRIBED FIRE GO/NO-GO CHECKLIST

	YES	NO
A. Has the burn unit experienced unusual drought conditions or does it contain above normal fuel loadings which were not considered in the prescription development? If NO proceed with checklist below, if YES go to item B.		
B. Has the prescribed fire plan been reviewed and an amendment and technical review been completed; or has it been determined that no amendment is necessary? If YES to any, proceed with checklist below, if NO, STOP.		

YES	NO	QUESTIONS
		Are ALL pre-burn prescription parameters 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 planned objective?

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

_____ _____

Burn Boss Date

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 6 – Daily Operations

Time 3 Hours

Objectives

1. Describe key elements in supervising the ignition, holding, monitoring and patrol operations.
2. Describe the importance of documenting monitoring and fire effects as they relate to prescribed fire objectives.
3. Given various prescribed fire scenarios, practice decisionmaking skills during daily operations.

Strategy

This unit will familiarize students with the daily operations of a prescribed fire burn boss on a prescribed fire. Key to this unit is focusing on continuous cycle of coordinating, evaluating, and adjusting during the decisionmaking process. This is accomplished through the use of decisionmaking scenarios/TDGS.

Instructional Methods

- Lecture, classroom discussion, scenarios/TDGS

Instructional Aids

☐ Computer with LCD projector and presentation software

☐ Flip charts and markers

Exercises

- Decisionmaking Scenarios. **The cadre must determine in advance how to facilitate the scenarios (see pages 6.6 – 6.8).** The cadre may choose to create additional scenarios or TDGS as long as they support the unit/course objectives.

Evaluation Methods

- Scenarios/TDGS will be evaluated as a class, but are not graded.
- The material covered in this unit will be applied and evaluated in the final exam.

Outline

I. Supervising Daily Operations
   A. Coordinating
   B. Evaluating
   C. Adjusting

II. The Importance of Documenting Monitoring and Fire Effects as They Relate to Prescribed Fire Objectives

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
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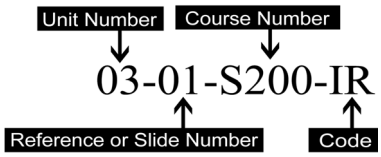


UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 6 – Daily Operations

OUTLINE	AIDS & CUES
TITLE SLIDE.	06-01-RX301-PPT
REVIEW UNIT OBJECTIVES.	06-02-RX301-PPT
Now that ignition operations have started, what do you, as a prescribed fire burn boss, need to do?	06-03-RX301-PPT
I. SUPERVISING DAILY OPERATIONS	06-04-RX301-PPT
Effective management demands ongoing attention to all information being input.	
Situation awareness is an unconscious process. Yet situational awareness can be enhanced through constant focus and attention.	
It is learning to pay attention to personal observations and communication cues coming from team members and other elements in the local and incident environment.	
As a burn boss you manage the operation. You are responsible for overseeing ignition, holding, mopup, and patrol phases. All of this can be happening simultaneously.	
Burn bosses are constantly coordinating, evaluating, and adjusting throughout the daily operational period.	06-05-RX301-PPT

OUTLINE	AIDS & CUES
A. Coordinating	06-06-RX301-PPT
1. Maintain and utilize chain of command.	
2. Ensure lines of communication are fluid.	
3. On and off site coordination with cooperators, air regulators, weather forecasters, dispatch centers, etc.	
4. Allowing personnel to do their job.	
B. Evaluating	06-07-RX301-PPT
1. Compare actual outcomes to the desired or expected outcomes.	
2. Observe and listen to burn operations (ignition, holding, etc.) and analyze progress to determine if the plan is being followed and expectations are being met.	
C. Adjusting	06-08-RX301-PPT
1. Maintain accordance with the prescribed fire plan through active and continual decisionmaking.	
2. Modify operations to achieve expected or desired outcomes.	

OUTLINE	AIDS & CUES
II. THE IMPORTANCE OF DOCUMENTING MONITORING AND FIRE EFFECTS AS THEY RELATE TO PRESCRIBED FIRE OBJECTIVES	
A. RX Fire Objectives	06-09-RX301-PPT
Prescribed fire objectives are clear, concise, and measurable.	
B. Fire Effects	06-10-RX301-PPT
Fire effects result from the measurable observation(s) of the firing pattern, flame length, fire intensity, and fire duration combination on the target vegetation and soil.	
C. Monitoring	06-11-RX301-PPT
Monitoring is the collection and analysis of onsite observations and/or measurements which evaluate changes in conditions and progress towards meeting the prescribed fire plan objectives.	
Monitoring is an ongoing process which must continue into subsequent post-burn years, as many fire effects are not immediately apparent.	

OUTLINE	AIDS & CUES
D. Follow documentation requirements as stated in the prescribed fire plan. What monitoring requirements are specified in the prescribed fire plan used in the Unit 4 exercise? How do these requirements relate to the prescribed fire plan objectives? What are the responsibilities of the Prescribed Fire Burn Boss?	06-12-RX301-PPT
EXERCISE: Decisionmaking Scenarios Overview: The scenarios are designed to focus on managing human factors and related decisionmaking that burn bosses may encounter on prescribed fires. For this reason, no maps are included with the scenarios. Time: 2 hours Exercise Preparation: Each scenario purposely does not give students all the information they may want. This is to avoid giving them a clear decision path, just as many situations on the fireline are not always clear. For most of the scenarios there are no wrong answers. The discussion points at the end of each scenario are to stimulate thought among the students. The discussion should include how a particular issue affects the burn boss position.	06-13-RX301-PPT

OUTLINE	AIDS & CUES
There are several ways to facilitate the scenarios. Instructors can vary the techniques or develop their own. Below are five suggestions: 1. Divide the class into four groups and give them 5-10 minutes per scenario to discuss the questions in each scenario. After each scenario, choose one group to present their solution and discuss with the class. 2. Have students work individually on each scenario. Students can answer all questions and then present and discuss their solutions. If students work individually, consider using time compressed decisionmaking (similar to a sand table exercise) by putting individuals in a hot seat and giving them 1-2 minutes to come up with a response. 3. Divide the class into groups of four students each, have each group work separately through all four scenarios. Rotate the hot seat so each student is given the opportunity to act as the prescribed fire burn boss for at least one scenario. Each group must have a facilitator with this method. 4. Divide the class into four groups and assign one scenario to each group. Groups will read their scenario to the class and present their solutions for discussion. 5. If time allows, some of the questions could develop into role playing exercises to further enhance the decisionmaking and communication process.	

OUTLINE	AIDS & CUES
Begin Exercise: 1. Refer students to the scenarios (SW pages 6.7 – 6.18; IG pages 6.9 – 6.20). 2. Thoroughly review instructions with students. 3. When finished with the scenarios, close out the exercise with a class discussion. Instructor should generate as much thought provoking dialogue (and debate) among the students as time allows. **End of Exercise.** **REVIEW UNIT OBJECTIVES.**	06-01-RX301-IR/SR 06-14-RX301-PPT

Decisionmaking Scenarios

Scenario 1:

You are the burn boss on a one-day, moderate complexity (Type 2), 25-acre burn. Fuels are primarily grass with pockets of brush mixed in. The topography is steep (40%) and the burning needs to go slowly. About halfway through the burn, the holding boss gets called away for a family emergency. Due to continuous fuels, there is nowhere to stop the burning. An active edge is backing through the entire unit.

The remaining resources are relatively inexperienced and no one is qualified to supervise the holders. Other than the firing boss, only two squad bosses (FFT1's) are amongst the firefighters. One is inexperienced, but overconfident; the other has more experience, but is a quiet individual who is not comfortable being in charge. Earlier you saw the holding boss correct a few of their decisions and you have little confidence in either of their abilities. At the bottom of the unit are some research plots. Several scientists have traveled far to collect data from this burn. Because it took months to coordinate this whole operation, the Agency Administrator insisted at the morning briefing that you complete the burn before dark so the data can be collected.

The overconfident FFT1 is insisting on taking over the holding and has already started issuing random and contradictory orders. To compound the situation, the firing boss didn't get word to hold up the burning and is bringing fire towards an unbuffered line where there are no holders. At this time you receive word that the lunches you ordered just showed up and people are hungry. You see a half dozen researchers wandering around the unit below the fire. This is directly against your original orders at the briefing that non-qualified personnel stay out of the burn area. Some of the researchers don't have personal protective equipment, let alone fire shelters. There is general confusion throughout the entire burn and you feel you are losing control of the incident. Everyone is talking over the radio at once as you watch the holding boss drive off. The nearest qualified holding boss is over an hour away, so by the time he would arrive, the situation would be a moot point.

The dilemma:

1. How many different situations are confronting the burn boss simultaneously in this scenario?

2. How would you prioritize which situation to deal with immediately?

3. What did you consider and what is the logic behind your decision?

4. What specific actions would you take?

Additional questions: **(instructor may consider a role play with questions 5 and 6)**

5. What do you say to the overconfident squad boss?

6. How do you tactfully handle the researchers when you are obviously overtaxed and probably frustrated?

Discussion points:

7. Ask students how they normally multi-task and prioritize decisions on prescribed burns? Wildfires? In an office setting? Are there similarities in each of these situations?

8. Ask students if they are experiencing a lack of qualified people at their home units (are there are a lot of open permanent and/or subject-to-furlough positions that have been difficult to fill?). What is the normal turnover of firefighters year to year at their home units? What is the average number of new firefighters being trained each year?

9. Ask students how their answers to question 8 will factor into their planning for prescribed burns once they are qualified burn bosses and have to put together burn organizations with minimal available resources (both overhead and crews) of their own?

Scenario 2:

You are assigned to be the burn boss of a small but moderately complex (Type 2) timber burn unit. The complexity is primarily based on heavy fuels and the time of year the burn must be executed to meet consumption objectives. Fuels are on the dry end of the prescription and you have reservations about burning under the present conditions. However, the FMO and Agency Administrator are under intense pressure to achieve target acres and you agree to take the assignment against your better wishes.

The burning has progressed well until an unexpected drop in humidity forces you to hold up in the middle of the unit. Holders are picking up numerous small spots and are scrambling to hold on to the burn. At this time, your dispatch office calls and informs you of a wildfire that was just reported locally and is threatening structures. The dispatcher anxiously asks you to release all the resources you can. A smoke column from the wildfire can be seen developing in the direction of the local community. This happens to be where several of the burn personnel live, including yourself.

You know if you release any resources, you may lose your burn. Despite there being no significant values at risk outside the unit, an escape could result in a large project fire under the current conditions. This would be a political disaster for your home unit and potentially to your career. You also know you are tying up the majority of the resources in the area. If you don't release any resources and the wildfire burns up some homes, this would also be a political disaster for your home unit and your career. There is a lot of anxiety among burn personnel with some borderline panic due to concern for their property and families.

Radio traffic indicates the holders have found another spot fire that they "think" they can handle. You hear on another radio channel that evacuations have begun in the local community. There are minimal resources on the wildfire and help is on the way, but it will be at least 45 minutes before significant resources arrive. Your own resources are within 30 minutes of the wildfire. Everyone is talking to you at once and volunteering a plan on how the situation should be handled.

The dilemma:

1. Do you release any of your resources to the wildfire?

2. What did you consider and what is the logic behind your decision?

3. How would you defend your actions one way or another at the inevitable board of investigation?

Additional questions:

4. If one of the burn personnel came to you in a panic and demanded to be released immediately to protect their home, what would your response be? **(Instructor may consider a role play)**

5. What type of information would you be documenting at this time?

Discussion points:

6. No matter what a burn boss decides in this situation, their actions would probably be analyzed and reviewed. What is the lesser of two evils in this situation–a large project fire or having a local community lose structures?

7. Many resources would prefer to fight fire over prescribed burning (hazard pay, hero syndrome, etc.) and may pressure a burn boss to be released.

8. The pressure of meeting fuels targets is real. This may contribute to igniting burns under marginal conditions, both on the hot and cold end of the prescription. Ask students whether fuels target pressure is affecting their home units. If so, what is the potential fallout from this?

9. In stressful situations, it is important for the burn boss to take time to gather their thoughts before making rash decisions. This may include the need to disengage for a couple minutes to concentrate.

10. The importance of documentation on all prescribed burns cannot be under-estimated. Do students realize their unit logs are legal documents and may be reviewed by an investigation team? What would be the consequence if the burn boss hadn't documented anything on this burn? On any burn?

Scenario 3:

You are the fuels specialist on a unit which does not do a lot of burning. For the past several years there has been a prescribed fire on the books that for one reason or another has never been completed. This year, you and your boss (the local FMO) are under pressure to complete the project. Your district has invested a lot of time and money into prepping and re-prepping the burn unit year after year. The burn will provide significant resource benefit to several sensitive plant species.

In addition, there is a radio tower to be protected at the high point of the unit. Interest level is very high from both your Agency Administrator and other division staff. The regional office is also very supportive and there is an expectation that the burn will finally be accomplished this year.

Burn unit specifications:

- Fuel type: timber
- Complexity: moderate
- Size: 110 acres
- Aspect: predominantly north facing
- Time of year: mid-October

The prescribed fire plan calls for the site to receive up to one-half inch of rain prior to any lighting. This occurred a week before the scheduled ignition and the fuel moistures are well within prescription. A "perfect" burn window has been forecasted for both weather and smoke dispersal.

Because your unit does not do a lot of burning, combined with the sensitive plant species and radio tower, the burn plan conservatively calls for numerous resources to be on site. Additionally, the burn is in a remote location and will require multi-day logistical support. Despite being supported at all levels, the burn has come under scrutiny for its high costs. Both you and the FMO are concerned about the cost which has increased the pressure to show some accomplishment for the money being spent. You are the burn boss for the project.

The day of the burn, all the resources and associated logistical support are assembled on scene. You give a thorough briefing, everything is a go, and everyone is very enthusiastic. The test burn at the high point shows the fire behavior is perfect for meeting objectives and is controllable. As the firing teams continue with ignition down the north aspect, the fire behavior decreases under the shaded canopy and you are right on the edge of truly meeting the burn objectives. One team reports that "everything is going out."

The dilemma:

1. Do you continue burning under these circumstances?

2. If you decide to postpone, how will you explain to your boss and the regional office about all the money you spent with nothing to show for it?

3. If you decide to continue, how will you explain to the other resource staff if the burn doesn't meet objectives?

Additional questions:

4. What could have been done to avoid this situation from occurring?

5. What is the risk of burning timber under too moist conditions?

6. What is the risk in repeatedly postponing a burn to wait for the "perfect" window?

7. How does the lateness of the year factor into pressure to meet burn targets?

8. What if the circumstances were reversed and the fire behavior was too hot?

Discussion points:

9. While optimal, frequent burn site visits and comprehensive fuel moisture sampling are not always possible due to heavy and conflicting workloads.

10. Not every burn unit can be burned under perfect conditions. Waiting for the "perfect" window risks never accomplishing anything. This is a dilemma facing every burn boss.

11. Not every burn unit needs to be burned hot; sometimes it's better to burn cool than to not at all.

12. Burning timber on the cool end of the prescription may only consume the fine fuels, making it very difficult to come back and burn the unit later.

13. Burning on the cool end risks creating long-term smoke issues.

14. Costs are very important for a burn boss to consider and can contribute greatly to pressure.

15. The perspective of worrying about costs differs significantly from being a burn boss versus being a fuels specialist in charge of an entire fuels program.

16. It can be very challenging to shift ones thinking about prescribed burn cost containment, especially when coming from a predominantly suppression background.

Scenario 4:

The burn prescription of a 50-acre timber unit for which you are the burn boss is as follows:

Weather/Fuels	Fuel Models 8, 9, 10
Temperature (degrees Fº)	45 – 75º
Relative Humidity (%)	25 – 60%
Mid-Flame Wind Speed (mph)	0 – 10
Wind Direction	Any
1-hour Fuel Moisture (%)	4 – 12%
10-hour Fuel Moisture (%)	5 – 13%
100-hour Fuel Moisture (%)	6 – 14%
1000-hour Fuel Moisture (%)	10 – 20%
Live Woody Fuel Moisture (%)	80 – 150%

It is late autumn in the Western United States. Fuels are at their normal seasonal dryness but still comfortably within prescription. Weather forecasts are favorable for completing the one-day burn. Just before the test burn, the fire monitor takes the current weather observations and all parameters are within prescription except for the temperature, which is 39º.

The dilemma:

1. Do you ignite the burn even though you would be violating interagency policy by burning out of prescription?

2. If you agreed to proceed with the burn and later there was a serious injury, what do you think your liability would be during the subsequent investigation for burning out of prescription?

After consulting with the local FMO and Agency Administrator, you all agree that to meet targets, it's acceptable in this case to burn out of prescription on the cool end with temperature. You successfully complete your test burn and are satisfied with the results. Less than 30 minutes later you are informed that the humidity dropped to 24%. You are now simultaneously out of prescription on both the hot and cold ends. The fire behavior is a backing fire with 4- to 8-inch flame lengths; fire effects are meeting your objectives and there are no control problems.

Additional questions:

3. When you are out of prescription on both the hot and cold ends simultaneously, do they cancel each other out?

4. Do you continue to ignite the burn unit under this scenario?

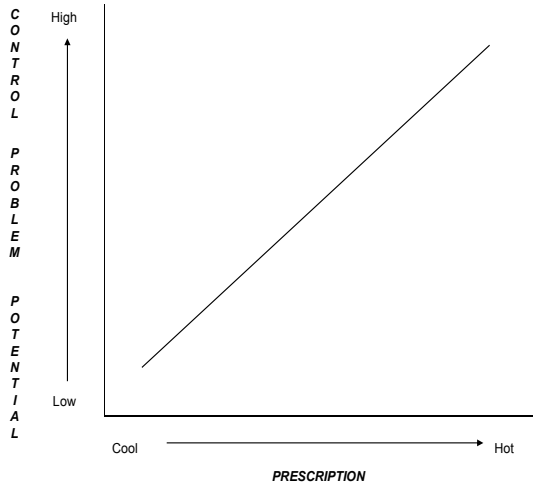
5. What other options do you have as a burn boss? Which option would you choose and why?

Discussion points:

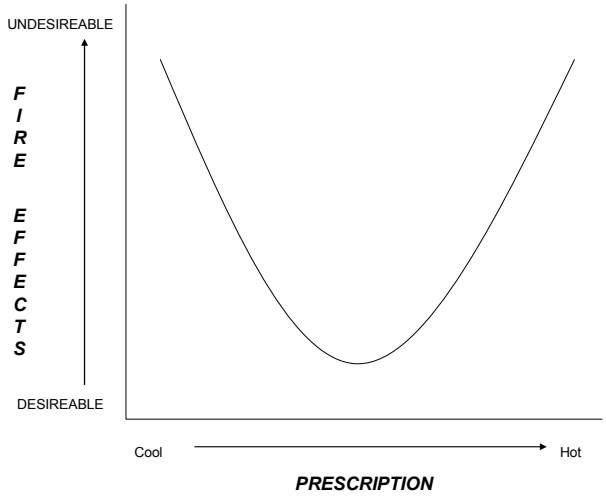
6. What are two primary parameters to consider in regards to developing and implementing burn prescriptions?

    - **Control of the burn**
    - **Fire effects (meeting burn objectives)**

7. Consider the following two generalized graphs. The graph below shows the relationship between prescription and control problems is fairly consistent regardless of fuel type. The hotter it is, the more control problems one is likely to have.



While the curve on the graph below may generally be a consistent concept, it may in fact shift around depending on desired objectives. Therefore, it becomes important that burn bosses see the relationship between their prescription and fire effects (burn objectives).



The bottom line is that burn bosses must know when to burn hot and when to burn cool to meet specific objectives. They must ultimately develop their prescriptions accordingly.

Close the exercise with a discussion of the liability of burning out of prescription. Include the following:

- What are some options a burn boss has when the prescription is exceeded?
  - Holding up ignition and allowing the fire to back through the unit until conditions return to favorable.
  - Continue to ignite if the unit is almost finished and it is justifiable.
  - Putting in a check line and waiting.
  - Full suppression.
- It is very important to monitor all prescription parameters. For example, fuel moisture measurements are just as critical as the weather.
- One strong gust of wind does not necessarily put a burn out of prescription. A burn boss must continually validate that a parameter is out of prescription. This can include:
  - Having another psychrometer compare a humidity reading.
  - Setting trigger points on when to take more frequent observations.
  - Having their dispatch office contact the weather service to get an update on the spot forecast.
- Under some circumstances it may be possible and desirable to get the prescription amended by the approving agency administrator.
- It's important to have prescription discussions with the FMO and/or agency administrator before a situation develops out in the field. For example, some managers may be comfortable burning out of prescription on the cool end as long as objectives are being met.

Leave students with these final questions:

- If a monitor reports a sustained wind that is out of prescription at the top of a burn unit, but ignition is currently taking place several hundred feet lower on the hill where winds are calm, is the burn out of prescription?

- Should the burn boss terminate the burn?

- To be out of prescription, does an entire burn unit need to be out or only a portion of the unit? **(This is an additional situation that should probably be discussed with a unit FMO and/or agency administrator prior to burning.)**

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 7 – Contingency Operations, Wildfire Conversion, and Declared Wildfire Review

Time 1.5 Hours

Objectives

1. Describe the difference between the contingency plan and wildfire conversion.
2. Describe the circumstances and actions needed to safely implement the contingency plan.
3. Describe the actions to be taken when a prescribed fire is declared a wildfire.
4. Describe the declared wildfire review process.

Strategy

This unit will familiarize students with contingency operations, wildfire conversion, and escaped fire review process. Instructor should emphasize the key differences between contingency operations and wildfire conversions. This is accomplished through instructor experience and scenarios.

Instructional Methods

- Lecture, classroom discussion, scenarios/TDGS

Instructional Aids

- Computer with LCD projector and presentation software

Reference Materials

- ☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide
- ☐ Burn plan from Unit 4 exercise

Exercise

- Contingency Operations and Wildfire Conversion. **The cadre must determine in advance how to facilitate the scenarios (see page 7.10).** The cadre may choose to create additional scenarios or TDGS as long as they support the unit/course objectives.

Evaluation Methods

- Scenarios/TDGS will be evaluated as a class, but are not graded.
- The material covered in this unit will be applied and evaluated in the final exam.

Outline

I. Contingency Plans vs. Wildfire Conversion

II. Circumstances and Actions Needed to Safely Implement the Contingency Plan

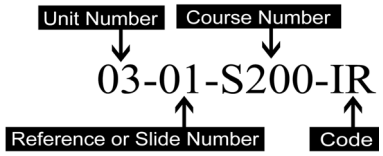
III. Actions to be Taken When a Prescribed Fire is Declared a Wildfire

IV. The Declared Wildfire Fire Review Process

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: 7 – Contingency Operations, Wildfire Conversion and Declared Wildfire Review

OUTLINE	AIDS & CUES
TITLE SLIDE.	07-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	07-02-RX301-PPT
I. CONTINGENCY PLANS VS. WILDFIRE CONVERSION	07-03-RX301-PPT
HAVE STUDENTS TURN TO THE CONTINGENCY PLAN SECTION OF THE GUIDE.	The Guide
There can often be confusion between the contingency plan and wildfire conversion. They are addressed in different sections of the prescribed fire plan and are two distinctively separate actions.	
A. Contingency Plan	07-04-RX301-PPT
• Is a contingency plan a required element of the prescribed fire plan? • If the contingency plan is activated, is the project still a prescribed fire?	
• Contingency plan is activated by personnel on the burn site (burn boss, firing boss, or holding boss).	07-05-RX301-PPT
• Activation of the contingency plan does not reflect failure.	

OUTLINE	AIDS & CUES
• Contingency actions can be implemented at any point during project implementation.	07-06-RX301-PPT
• Don't need to order contingency resources to implement contingency actions.	
• Contingency plan can have a timeline (if contingency resources are ordered, actions must be successful by end of next burning period).	
• Personnel must meet prescribed fire qualifications commensurate with assigned duties.	
• Resources may be on or off-site as required by the prescribed fire plan.	The Guide
B. Wildfire Conversion	07-07-RX301-PPT
• Wildfire conversion is part of the prescribed fire plan.	
• When the conversion has been declared, the project is no longer a prescribed fire – it is a wildfire.	
• If there is a wildfire conversion, the project cannot be reverted back to a prescribed fire.	
• Declaration should only be made by the person(s) identified in the prescribed fire plan.	07-08-RX301-PPT
• Personnel must meet wildland fire qualifications commensurate with assigned duties.	

OUTLINE	AIDS & CUES
II. CIRCUMSTANCES AND ACTIONS NEEDED TO SAFELY IMPLEMENT THE CONTINGENCY PLAN	07-09-RX301-PPT
A. Circumstances Not meeting, exceeding, or threatening to exceed the following: • Project or unit boundary • Objectives • Prescription parameters • Minimum implementation organization • Smoke impacts • Other prescribed fire plan elements	
B. Actions • Safety (do conditions warrant the safe implementation of the plan for personnel, public, and values at risk?) • Maintain chain of command and span of control. • Adjust operations accordingly to support contingency plan (adjust/stop ignition, order additional resources, reallocate resources?)	07-10-RX301-PPT
REVIEW THE CONTINGENCY ELEMENT OF THE PRESCRIBED FIRE PLAN USED IN THE UNIT 4 EXERCISE. DISCUSS CIRCUMSTANCES AND ACTIONS TO BE TAKEN BY THE RXB.	

OUTLINE	AIDS & CUES
III. ACTIONS TO BE TAKEN WHEN A PRESCRIBED FIRE IS DECLARED A WILDFIRE	07-11-RX301-PPT
A. Circumstances	
• Contingency actions have failed or are likely to fail and cannot be mitigated by the end of the next burning period by any listed contingency resources.	
• The fire has spread outside the project boundary, or is likely to do so, cannot be contained by the end of the next burning period.	
• A prescribed fire can be converted to a wildfire for reasons other than an escape.	
• Agency specific reasons	
B. Actions	07-12-RX301-PPT
• Safety (LCES)	
• Chain of command and span of control	
• Wildfire declaration (specify who declares)	
• IC and overhead assignment	
• Notifications (dispatch, Agency Administrator, FMO, adjacent landowners, etc.)	
• Extended attack actions and opportunities to aid in suppression efforts.	

OUTLINE	AIDS & CUES
C. Additional items for the IC (burn boss) to consider: • Ordering of additional resources • Request a fire investigator • Request a fire information officer (media interviews) • Accident investigation • Secure the scene (area of escape) • Development of a WFSA or agency appropriate documentation	
REVIEW THE WILDFIRE CONVERSION ELEMENT OF THE PRESCRIBED FIRE PLAN USED IN THE UNIT 4 EXERCISE. DISCUSS CIRCUMSTANCES AND ACTIONS TO BE TAKEN BY THE RXB.	
IV. THE DECLARED WILDFIRE REVIEW PROCESS All prescribed fires declared a wildfire will have an investigative review initiated by the Agency Administrator. This is where your adherence to the prescribed fire plan and accuracy of documentation will be thoroughly examined.	07-13-RX301-PPT

OUTLINE	AIDS & CUES
A. Elements of the Review Process • Determine if the prescribed fire plan was adequate for the project and complied with agency policy and guidance related to prescribe fire planning and implementation. • Determine if the prescription, actions, and procedures set forth in the prescribed fire plan were followed. • Describe and document factual information pertaining to review. • Determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate. • Determine the level of awareness and the understanding of the personnel involved, in regard to procedures and guidance. • Determine if all assigned personnel were properly qualified for and operating in their assigned positions. • Determine if overhead were acting in more than one position simultaneously.	07-14-RX301-PPT 07-15-RX301-PPT

OUTLINE	AIDS & CUES
B. Elements of the Final Report	07-16-RX301-PPT
• An analysis of seasonal severity, weather events, and on-site condition leading up to the wildfire declaration.	
• An analysis of the actions taken leading up to the wildfire declaration for consistency with the prescribed fire plan.	
• An analysis of the prescribed fire plan for consistency with policy.	
• An analysis of the prescribed fire prescription and associated environmental parameters.	07-17-RX301-PPT
• A review of the approving Agency Administrator's qualifications, experience, and involvement.	
• A review of the qualification and experience of key personnel involved.	
• A summary of causal agents contributing to the wildfire declaration.	

OUTLINE	AIDS & CUES
EXERCISE: Contingency Operations and Wildfire Conversion. Purpose: To provide students with an opportunity to make decisions regarding contingency operations and escapes. Time: 45 minutes Format: Students can work in groups or individually depending on the presentation preference of the instructor. Scenarios 2 and 3 could be presented in TDG format, with or without the use of sand tables. Using this format with time compressed decisionmaking is an effective teaching tool. Students could be placed in the "hot seat" in their groups or as a class. Materials Needed: If sand tables are used, the instructor will need to design the topography to fit in with the exercise. **Important:** Do not be overly concerned with creating "perfect" sand table topography to the point where it detracts from the intent of the exercise. Exercise Instructions:	07-18-RX301-PPT
1. Refer students to the scenarios (SW pages 7.9 – 7.18; IG pages 7.11 – 7.22). 2. Thoroughly review instructions before beginning exercise. 3. When finished with the scenarios, close out the exercise with a class discussion. **End of Exercise.**	07-01-RX301-IR/SR
REVIEW UNIT OBJECTIVES.	07-19-RX301-PPT

Contingency Operations and Wildfire Conversion

Scenario 1

Date: July 15
Place: Southwest Colorado
Fuels: Pinyon-juniper, sagebrush, cheatgrass
Burn size: 500 acres

It is day two of a three-day burn. The operation the day before went well with a blackline accomplished around the entire north end of the burn. The objective for the current day is to continue blacklining the flanks of the burn, while beginning to fire the interior. Briefing is scheduled for 1000.

At 0930, you (the Burn Boss) are notified by dispatch that one of your Type 3 engines will be delayed due to a mechanical problem. Their expected time of arrival will not be until the following day. You consult the burn plan and determine that you still have the necessary amount of resources required in the plan.

You give the briefing as planned to the rest of the resources. Before the test burn, both your firing boss and holding supervisor tell you they are not comfortable igniting the unit without the missing Type 3 engine. Despite your own comfort level with the situation, you respect both of their judgments. Unfortunately, delaying ignition for one day means you will probably not be able to finish the burn.

After the third day you will lose most of your resources to prior commitments. Due to the time of year, there is also pressure from the local FMO and Agency Administrator to complete the burn as scheduled. Having a partially burned unit will be unacceptable. You have a good three-day burn window for both weather and smoke; after which conditions start deteriorating.

After stating your case for why you feel the burn could continue, the firing boss and holding supervisor both remain very uncomfortable with proceeding. At this point you have reached an impasse.

1. Other than directly ordering the burn to proceed against the wishes of your overhead, is there another way to come up with a compromise where the burn could still be completed and their concerns mitigated?

2. What would you do if the contingency resource was able to show up, but must still be able to maintain delayed wildfire response availability?

INSTRUCTOR NOTE: This scenario does not have an exact right or wrong answer. The idea is to get students to think about the option of ordering an engine from their contingency resources. The scenario purposely doesn't list contingency resources and response times to avoid making the intended answer too obvious.

If students ask for additional information regarding contingency resources, the instructor could tell them the following:

- **There is a Type 3 engine available as a contingency resource.**
- **It can be at the burn site within 1.5 hours after ordering.**
- **Under this timeframe the burn could be completed.**

Additional items students should consider:

- **Appropriate notifications to dispatch**
- **Appropriate documentation**

Scenario 2

Date:	September 22
Place:	Bakersfield, California
Fuels:	Grass
Topography:	Rolling foothills, < 2,000 foot elevation, slopes averaging 20%
Size:	250 acres
Resources:	2 – Type 3 Engines
	2 – Type 6 Patrol Engines
	1 – Water Tender (3,000 gallons)
	1 – 20-person Type 2 handcrew
	1 – Firing Boss
	1 – Holding Supervisor (TFLD qualified)

You are the Burn Boss for this one-day burn which is surrounded by roads. The time is 1800 and operations are winding down as the burn is almost complete. At 1818, the Holding Supervisor reports a slopover making a rapid run upslope. He reports that the slopover is probably going to "go over the hill." Fuels are continuous grass and the slopover is heading away from any structures or improvements. The rest of the burn perimeter is secure and will require only an engine patrol.

Despite being tired from working all day, your resources begin forming an anchor point. The plan is to work the flanks with direct attack using two of the engines and the handcrew. The water tender still has all its water and can support the hoselays.

You request a sizeup from the holding supervisor and receive the following information:

The slopover is 5 acres and spreading faster than what the crews will be able to keep up with. Current weather observations: temperature is 78°, RH is 27%, winds out of the west at 5-7 miles per hour. The fire is spreading east into a roadless (non-wilderness) area and being pushed by a wind and slope alignment. The Holding Boss estimates the fire will continue to spread due to continuous fuels regardless of wind and topography. Despite conditions turning favorable with nighttime coming on, he states he will need additional resources to pick up the slopover. He has no estimated time of containment.

These are the contingency resources listed in your burn plan:

1 – Type 2 Helicopter (now unavailable due to the approaching darkness)
2 – Type 3 Engines (one- and two-hour response times respectively)
1 – Type 2 Dozer (two hours response time)

All resources were available when you started the burn and you were not informed of any being committed to other incidents.

Have students answer questions 1-3 and then discuss.

1. What does the interagency policy say about when a prescribed burn must be converted to a wildfire?

   When contingency actions have failed and cannot be mitigated by the end of the next burning period. (Source: Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide, page 25)

2. Do you automatically convert the burn to a wildfire at this time? Explain your answer.

   Yes or no answer; students must justify their decision.

3. Do you order your contingency resources? Explain your answer.

   Yes or no answer; students must justify their decision.

After discussing the situation with your Holding Supervisor, you call dispatch around 1830 and order the contingency resources (minus the helicopter). Dispatch informs you that the resources are available, but being after hours, there may be some delay getting them to you. Dispatch estimates all additional resources should be on scene by around 2100 hours.

The Duty Officer is contacted and informs you she is comfortable with you retaining control of the incident due to your qualifications. She says she will be available by phone and you both agree on times for future updates.

Have students answer questions 4-5 and then discuss.

4. Now that you ordered your contingency resources, does this mean you must now convert the burn to a wildfire?

   No, per pages 24-25 of the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide.

5. If you had decided to order additional resources than what is listed in the contingency plan, does that mean the burn must be converted to a wildfire?

   No, as long as you can continue to cover costs without using suppression dollars. Refer to agency specific guidelines.

By 2230, the dozer finally arrives on scene and you now have your full complement of contingency resources. The original burn unit is in patrol status and is pretty much out. Despite a slackening of the winds and cooler nighttime conditions, the slopover is continuing to burn actively by responding to topography in the rolling hills. The exact size is unknown. There is still no estimated time of containment.

Have students answer question 6 and then discuss.

6. After four hours of control actions and still no estimated time of containment, does this mean you must now convert the burn to a wildfire?

   Per the interagency policy, only if the slopover cannot be contained by the end of the next burning period. Refer to agency specific guidelines.

The slopover is contained by 0500. Size is estimated to be between 100-150 acres. The dozer was able to work much of the perimeter except due to resource damage concerns where the fire crossed a riparian area. The engine crews married up and formed a short handcrew and, combined with the Type 2 handcrew, were able to contain the rest of the slopover with a handline.

Most of the perimeter is quiet; most of the remaining heat is within the riparian area which will smoke for a few days unless mopped up. After the excitement of the control action, you realize that your resources are exhausted and need to be released. You have yet to order a day shift. You contact dispatch and order two Type 3 engines and one Type 2 handcrew with a time needed of 0800.

Have students answer questions 7-10 and then discuss.

7. With the size of the slopover being greater than 100 acres, and now that you have ordered additional resources for day shift, does this mean you must now convert the burn to a wildfire?

   No, as long as you can continue to cover costs without using suppression dollars. Refer to agency specific guidelines.

8. What other issues, policy and otherwise, should you have been concerned with throughout the slopover?

   - **Work/rest guidelines**
   - **Having rested drivers when releasing resources**
   - **Ordering additional resources for a day shift**
   - **Logistics such as food, water, etc.**
   - **Documentation**
   - **Updates to dispatch and the duty officer**

9. If at some point during the slopover, had you decided to convert the burn to a wildfire, what other specific actions would you need to have taken? What other policy document would offer you guidance in addition to the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide?

   The burn boss would have needed to follow the agency specific procedures outlined in the "Interagency Standards for Fire and Aviation Operations" (Red Book) and in their agency specific manuals.

10. By working your resources through the night in this scenario you exceeded the work/rest ratio. Does this mean you should have converted the burn to a wildfire? How would you justify this to your Duty Officer?

    The burn boss can claim work/rest guidelines were exceeded due to the initial attack on the slopover (policy allows for up to a 24-hour shift). Any action of this nature must be in accordance with agency and/or unit specific guidelines.

INSTRUCTOR NOTE: There is no right or wrong answer as to whether students should have converted the above scenario to a wildfire. Some key points to emphasize to students are:

- **Agency policy can be more restrictive than the interagency prescribed fire guide. Therefore, it is very important for them to know their agency specific policy converting a prescribed burn to a wildfire.**

- **Familiarity with other wildland fire policies (work/rest guidelines, etc.) is a must for prescribed burn bosses.**

- **Additionally, they must know if their unit has specific guidelines for wildfire conversion.**

- **While interagency policy would not have necessitated a wildfire conversion in the scenario above, some unit duty officers/fire management officers/agency administrators may have insisted on a conversion under the above circumstances.**

Scenario 3

You are the Burn Boss of a timber burn in October during the second operational period. At 1256 a spot fire was detected several hundred yards off the burn perimeter. You immediately ordered your contingency resources. By 1412, you estimate the on-site and contingency resources will be unable to contain the spot fire by the end of the next burning period.

Have students answer question 1 and then discuss.

1. What actions should you take at this time?

   Student answers should include:

   - **Notify dispatch/duty officer/Agency Administrator of the situation**
   - **Convert the burn to a wildfire with Agency Administrator concurrence**
   - **Follow procedures set in the burn plan (Element 18, Wildfire conversion)**
   - **Brief resources on tactics and safety**
   - **Documentation**
   - **Set incident priorities and order additional resources as needed**

With concurrence of the Agency Administrator you converted the burn to a wildfire. At that time you ordered additional resources; by 1600 all of the resources had arrived and were engaged on the fire. You also ordered an ICT3 who won't be able to transition with you until the following morning. Because this is now being considered an initial attack, you have permission to continue working through the night. Everything up until now has been done with continued concurrence with the Duty Officer and Agency Administrator.

The escaped fire has burned into the wildland urban interface. One residence has been confirmed destroyed and two more are reportedly threatened. Resources on hand are adequate and believe they can save these residences. They are optimistic in having the fire contained by the next morning.

One firefighter slipped down a steep slope and is currently being assessed for a possible medevac. Preliminary reports indicate the firefighter has a broken leg. Firefighters are scouting the area suitable for helispot construction.

The current time is 1653. The Structure Group Supervisor just reported by radio that the media has arrived and is starting to ask questions.

INSTRUCTOR NOTE: If instructors want to place additional emphasis on tactics, they can embellish this scenario with more information and add specific tactical questions.

Have students answer questions 2-3 and then discuss.

2. What do you consider to be your highest incident priority?

   Based on incident priorities being life, property, and natural resources, the firefighter with the broken leg should be the priority. Students must be able to justify their answer.

3. What specific actions do you take regarding your highest incident priority?

   Obtain an assessment of the situation (based on how the students answered the previous question). Try to get the injured firefighter medevaced before darkness. Update dispatch/duty officer and document your actions.

You arrive at the interface area and are immediately confronted by angry homeowners. This catches you off guard as you thought the area had been evacuated. The homeowners are demanding your agency take responsibility and some are asking how they will be compensated for their lost property. The atmosphere is emotionally charged.

Have students answer question 4 and then discuss.

4. What is your response to the homeowners? Can you accept responsibility for your agency? **(consider a role play for this question)**

   There is no right or wrong answer. However, the students must realize they have to be very careful not to admit responsibility for their agency. See the instructor note on page 7.22 for additional comments.

After talking to the homeowners you tie in with the Structure Group Supervisor. He is currently talking to the media with the cameras rolling. You overhear what he is saying and it is completely erroneous and bordering on inappropriate. The reporters are writing furiously on their note pads as he is talking.

Have students answer question 5 and then discuss.

5. What is your response to this situation? **(consider a role play for this question)**

   There is no right or wrong answer.

After seeing you, the Structure Group Supervisor says, "There's the Burn Boss now, you should ask him." Almost immediately there are cameras rolling on you and you are being asked pointed questions about the burn operation. Some specific questions are: What led to this "disaster"? Why did this happen? Why did your agency light this burn in the first place? Who is responsible? How could this have been avoided? How can your agency guarantee this type of catastrophe won't happen again?

Have students answer question 6 and then discuss.

6. What will your response be to the reporters? **(consider a role play for this question)**

   There is no right or wrong answer. See instructor note on the next page for additional comments.

INSTRUCTOR NOTE: Many agencies/units have specific policies for talking with the public and/or the media. It is important that students discuss with their appropriate unit personnel how they should deal with a scenario such as this. This discussion should occur before the season rather than after the fact. Specific points to emphasize are:

- **To the public and media, the burn boss could be the face of their agency at a moments notice. It is very important to stay professional at all times by not getting confrontational or overly defensive no matter how personal or offensive the questions or comments may become.**

- **Burn bosses will probably not be authorized at their level to accept agency liability.**

- **While it may be appropriate to convey empathy and compassion, burn bosses should be cautious about issuing an official agency apology.**

- **When speaking to the media, do not use the phrase "no comment." Rather than avoiding the media, ask for their questions up front or ask for time to prepare for the interview. Make it clear that you want to help them, but that they will get better information if you work together.**

- **If you do not know the answers to media questions, admit this and ask if you can put them in touch with someone else who can respond more appropriately. Do not bluff your way through tough questions.**

- **A situation like this could be tremendously distracting to a burn boss. Operational and/or safety concerns should still take priority.**

- **Consider ordering a public information officer to be on site early in the process of managing the escape.**

At 1903 an additional spot fire is reported. It is said to be making a major run and appears that much of your fireline has been lost. You no longer have enough resources to manage the situation. It is also becoming clear to you that the escape has become more complex than a Type 3 incident. You notify dispatch and consult with your Duty Officer and agree to order an Incident Management Team. You are now managing the incident in the interim until you are relieved in the morning either by the new ICT3 or the actual team.

Have students answer questions 7-11 and then discuss.

7. What are your primary concerns at this time?

   Student answers should include:

   - **Accounting for the location and safety of all resources**
   - **The status of the injured firefighter**
   - **Continued protection of the structures**
   - **Reorganizing the remaining resources to either hold onto what you have or continue with the suppression effort**
   - **Preparing a transition plan for either the ICT3 or the IMT**
   - **Making proper notification**
   - **Thorough documentation**

8. What ICS forms could you prepare to facilitate a smooth transfer to an IMT?

   ICS-201, Incident Briefing
   ICS-202, Incident Objectives (at a minimum)

9. What are some other general items you should include in a transition packet and briefing to an IMT?

   Delegation of authority, transition briefing paper (even if it's just notes on a pad), WFSA, specific goals and objectives, map, etc. Refer to agency specific guidelines.

10. What other agency or unit specific procedures would you have to follow during this escape and transition to an IMT?

    Refer to agency specific guidelines.

11. How can you as the Burn Boss be prepared for the inevitable declared wildfire review?

    - **Thoroughly documenting your actions before, during, and after the escape.**
    - **Being familiar with "The Guide" and Red Book sections pertaining to escape fires.**
    - **Knowing your agency and unit policies.**

UNIT OVERVIEW

Course Prescribed Fire Implementation, RX-301

Unit 8 – Post-Burn Activities and Documentation

Time 30 Minutes

Objectives

1. Describe the post-burn activities that must be completed by the prescribed fire burn boss.

2. List the required components of post-burn documentation folder.

Strategy

This unit addresses the administrative responsibilities of a burn boss associated with concluding a prescribed burn.

Instructional Methods

- Lecture, classroom discussion

Instructional Aids

- Computer with LCD projector and presentation software

Reference Materials

☐ Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide

☐ IRPG

Optional Materials to Support the Unit

☐ The instructor may choose to display a recent post-burn package they have completed.

☐ Use an escaped fire review to show how the contents of the documentation folder were used.

Exercises

There are no formal exercises associated with this unit.

Evaluation Method

The material covered in this unit will be applied and evaluated in the final exam.

Outline

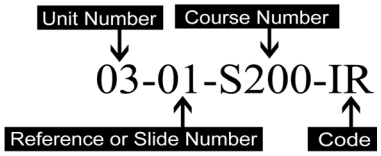
I. Post-Burn Activities

II. Post-Burn Documentation

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	SW – Student Workbook
IR – Instructor Reference	SR – Student Reference
HO – Handout	PPT – PowerPoint



UNIT PRESENTATION

COURSE: Prescribed Fire Implementation, RX-301

UNIT: Unit 8 – Post-Burn Activities and Documentation

OUTLINE	AIDS & CUES
TITLE SLIDE.	08-01-RX301-PPT
PRESENT UNIT OBJECTIVES.	08-02-RX301-PPT
I. POST-BURN ACTIVITIES	08-03-RX301-PPT
Post-burn activities are paramount to a successful prescribed fire program. The burn boss should ensure that post-burn activities are completed and documented.	
A. After Action Review	08-04-RX301-PPT IRPG
• What was planned?	
• What actually happened?	
• Why did it happen?	
• What can we do next time?	
B. Post-Burn Report	08-05-RX301-PPT
A summary of how the burn went and how well it met short-term burn objectives.	
This can be in the form of a unit log, narrative, or chronological report.	

OUTLINE	AIDS & CUES
C. Other Activities • Safety mitigation measures • Rehabilitation • Declaring a prescribed fire out	
II. POST-BURN DOCUMENTATION	08-06-RX301-PPT
Project files should be as complete and organized as possible. They are legal documents that will need to be accessed in the event of an investigation or review. There is also historic value as a source of empirical evidence for further land management actions.	
A. Required Documents	08-07-RX301-PPT
1. Prescribed fire plan 2. Monitoring data • Weather observations • Fire behavior • Fire effects • Smoke dispersal observations 3. Weather forecasts 4. Notifications 5. Documented prescribed fire organization	08-08-RX301-PPT
6. Agreements related to implementation	

OUTLINE		AIDS & CUES
7.	Prescribed Fire Go/No-Go Checklists	
8.	Revalidation of the agency administrator pre-ignition approval checklist	
9.	Agency specific reports (Fire Report or ICS 209)	
B.	Optional Documents	08-09-RX301-PPT
1.	After Action Review	
2.	Incident Action Plan, Unit Logs	
3.	Press releases	
4.	Actual ignition patterns and sequences used	
5.	Smoke management information	
	• Air Quality Notice of Violation (NOV) Reviews	The Guide
6.	Agency individual fire occurrence form	
7.	Detailed post-burn report	
8.	NEPA documentation	
9.	Permits	
10.	Project cost summary	

OUTLINE	AIDS & CUES
As an RXB, what dictates your responsibility for the contents of the project file? **Items identified in the prescribed fire plan, agency/local policy.**	08-10-RX301-PPT
REVIEW UNIT OBJECTIVES AND PREPARE FOR FINAL EXAM.	08-11-RX301-PPT