

North Carolina Department of Natural and Cultural Resources
Division of Parks and Recreation

FIRE MANAGEMENT
GUIDELINES



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FIRE MANAGEMENT GUIDELINES

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1.0 DIRECTOR'S STATEMENT

Historically, fire has played a dominant role in determining the distribution of plants and animals across much of North Carolina. Fire history studies have established that repeated fires operating along a broad scale of intensities and frequencies are a natural component of virtually every vegetated ecosystem. Consequently, ecologists now know that hundreds of plant and animal species that occur in North Carolina, including many that occur in our state parks, are dependent on fire for rejuvenation and reproduction.

Because fire is an inherent aspect of most vegetated ecosystems, it is important to recognize its long-term ecological role in the maintenance of intact, normally functioning ecosystems. Since it is part of the Division's mission to perpetuate the presence of high-quality natural resources, then where appropriate and feasible in our state parks, prescribed fire will be used to maintain and enhance fire adapted natural communities. The use of prescribed fire will allow the Division to accomplish a number of goals, including the removal of hazardous fuel levels; reduction of wildfire risk to neighboring properties; the protection of biological diversity; the protection of rare species and their habitats; and the opportunity to provide the public with timely information on an important environmental education topic.

A handwritten signature in black ink, appearing to read "John Fullwood".

John Fullwood, Interim Director

2.0 INTRODUCTION

Fire has played a prominent role in shaping all but the wettest or most arid natural communities of the United States. Fire history studies in the southeastern U.S. have documented frequent fires over at least the past 4,000 years, and for perhaps as long as 10,000 years (Fesenmyer and Christensen, 2010). While few sites burned every year, fires likely burned somewhere in North Carolina every year. Widely varying terrestrial ecosystems reflect this long evolutionary resilience to repeated fire (Spencer *et al.*, 2017; Ryan *et al.*, 2013; Lafon *et al.*, 2007; Brown *et al.*, 2000; Elliott *et al.*, 1999; Frost 1998).

Fire dependent ecosystems exhibit high species diversity, and approximately 65 percent of the nearly 700 rare plant species that occur in North Carolina are known to be fire dependent (data from the NC Natural Heritage Program). Similar positive effects have been documented throughout the southeast for birds (Greenberg *et al* 2007, and Dickson *in Ford et al.*, 2002), amphibians (see Brown *et al.*, 2011), herpetofauna (Greenburg *in Ford et al.*, 2002), and other wildlife (see Van Lear and Harlow *in Ford et al.*, 2002). Fire plays a positive and integral role in a wide range of species in much of North Carolina (Harper *et al.*, 2016).

Ecosystem diversity decreases when fire is suppressed. These effects include declines in fire tolerant species, increases in fire intolerant species, forest overstocking, and declines in herbaceous diversity. Animal communities react similarly, and include declines in avian, reptile, and mammalian diversity (Ryan *et al.*, 2013; Knapp *et al.*, 2009; Nowacki and Abrams 2008; Ford *et al.*, 2002; Elliott *et al.*, 1999; Frost 1998).

Although the North Carolina state park system has a well-established fire management program, it is not immune from the effects of fire suppression. Fire suppression policies since the 1920s have greatly reduced fire throughout the eastern US, with profound ecological consequences (Aldrich *et al.*, 2014; Nowacki and Abrams, 2008). Year-round fire management is critical for the restoration and maintenance of our parks' natural resources. These guidelines are intended to improve fire management in the state parks system by:

- Ensuring that fire management achieves specific short and long-term resource management objectives;
- Minimizing undesirable secondary effects;
- Reducing the risk of injury, property damage, and liability;
- Increasing system-wide consistency in fire management;
- Improving the efficiency and cost-effectiveness of program activities; and
- Developing cooperative agreements with other fire management agencies.

3.0 POLICY

The goal of the DPR fire management program is a diverse array of ecologically diverse fire-adapted plant communities. The restoration and maintenance of these fire-adapted ecosystems will be dependent on fire regimes of varying severity, frequency, seasonality, weather and fuel combinations, and ignition patterns.

It is the policy of the North Carolina Division of Parks and Recreation that every park will develop a fire management program that: 1. Coordinates wildfire response, and 2. Where appropriate, applies prescribed fire on a landscape scale to restore and maintain fire-dependent natural communities. No park will initiate a fire management program without an approved plan (See Section 6.0). All DPR prescribed fire activities will follow the laws governing prescribed burning set out in the N.C. Gen. Stat. Chapter 106, Article 78, Regulation of Open Fires and Article 80, the North Carolina Prescribed Burning Act (Appendices 1, 2).

4.0 PROGRAM ADMINISTRATION

4.1 Director

The Director of the Division of Parks and Recreation has overall responsibility for fire management in all areas administered by the Division. The Director sets program policy and standards. In accordance with Section 5.4, the Director and the Department of Natural and Cultural Resources (DNCR) will approve all cooperative agreements between the division and other agencies and organizations. The Director must approve all recommendations of the Division Fire Management Team to be a Division Burn Boss.

4.2 Deputy Director of Operations

The Deputy Director of Operations (DDOP) is responsible for the approval of all park Emergency Response Plans and approves the selection of operations personnel to serve on the Division Fire Management Team. Along with the Deputy Director of Planning and Natural Resources (DDNP), the DDOP reviews cooperative agreements with other organizations and makes recommendations for the Director to approve.

4.3 Deputy Director of Planning and Natural Resources

The Deputy Director of Planning and Natural Resources ensures that the natural resources section has the expertise to serve as effective fire science advisors to the Division and approves the selection of natural resources management personnel vacancies on the Division Fire Management Team. In the absence of a Fire Management Officer, Ecological Burn Coordinator and Natural Resources Program Manager, the DDPN will assign qualified individuals to serve the roll in the absence of the positions for day of burn approvals. Along with the DDOP, the

DDPN reviews cooperative agreements with other organizations and makes recommendations for the Director and the Department to approve.

4.4 District Superintendent

District Superintendents (DISU) will review and approve fire management plans in their regions and ensure compliance with the Division's Fire Management Guidelines. The DISU will oversee the prescribed fire program and approve all Park Emergency Response Plans, prescriptions at the district level and, along with the Fire Management Officer, provide go/no go day-of-burn approvals.

4.5 Natural Resources Program Manager

The Natural Resources Program Manager (NRPM) leads the Division's Fire Management Team and is responsible for the application of scientific principles and concepts in the Division's fire program. This position serves the role of the Fire Management Officer and/or Ecological Burn Coordinator in their absence.

4.6 Park Superintendent

Park Superintendents (PASU) will help prepare and approve the fire management plans and prescriptions within their parks. PASUs play a key role in coordinating fire management activities in the park in coordination with natural resources staff, NC Forest Service, and other partner organizations. PASUs will supervise the park's fire management records. Along with the Fire Management Officer and the DISU; the PASU must give day-of-burn approval.

4.7 Fire Management Officer

The Fire Management Officer (FMO) is the Division's fire management specialist. The FMO serves on the Division Fire Management Team, approves all prescriptions, and conducts the complexity analysis for each prescription. The FMO will maintain the DPR Incident Qualification System (IQS) database. The FMO or their designee can initiate All Hazard Taskbooks for DPR staff and track staff trainings and qualifications in IQS. Along with the PASU and DISU, the FMO approves the burn boss's go/no go day-of-burn decisions. The FMO can serve as the burn boss on all state park units.

4.8 Ecological Burn Coordinator

The Ecological Burn Coordinator (EBC) is the Division's prescribed fire specialist. The EBC serves on the Division Fire Management Team, in the absence of the FMO the EBC will be tasked with the FMO's duties. The EBC can serve as the burn boss on all state park units.

4.9 Division Fire Management Team

Division Fire Management Team (DFMT) was established in 2012 to serve as the main advisory group on Division fire policy and prescribed fire applications. The DFMT is led by the NRPM and consists of the FMO, EBC, and four operations members, preferably one from each of the four districts and one of the four DISU's. Operations staff members are recommended by the respective DISU to the DFMT for approval, who then forward for final approval by the DDOP. The DFMT meets regularly to update fire management guidelines as needed, evaluate fire-related incidents, respond to changes in the rapidly evolving field, and recommend certification of DPR burn bosses.

4.10 DPR Burn Boss

A burn boss is the person who has the legal responsibility for a prescribed fire. It will be the responsibility of the burn boss to ensure compliance with the Division's Fire Management Guidelines, the park's fire management plan, the burn unit prescription, and all applicable laws and regulations. DPR burn bosses must be certified according to parameters defined in Section 8.3 (Burn Boss Certification). Where feasible, the burn boss will be on the staff at the park where the fire is occurring; however, the burn boss may come from another park, DPR program, state division or other organization. The burn boss is in charge of the fire, and if necessary, all suppression activities until the fire is considered out or safely contained or they have been replaced by the NC Forest Service. It is the burn boss's responsibility to make sure that adequate staff and equipment are on hand to meet the requirements of the prescription and that all burn crew staff are adequately trained and equipped.

4.11 Public Information Officer

The Division's Public Information Officer (PIO), in coordination with the PASU and natural resources staff, will prepare and issue press releases informing the public of the status of significant wildfires in the parks, and of the scheduling and purpose of prescribed fires. The PIO will coordinate and administer web-based and social media contacts. The PIO will be notified prior to all prescribed fires.

4.12 Natural Resources Program

The Natural Resources Program (NRP) assists with the preparation of each park's fire management plans and prescriptions. NRP staff provide assistance regarding fire ecology and fire management objectives. NRP staff cooperate with other staff, agencies, and the scientific community on training, monitoring, fire ecology, interpretation and education efforts and advise the DFMT. The fire management database will be administered by the natural resources staff.

4.13 Interpretation and Education Specialist

The Interpretation and Education Specialists will provide assistance as needed with training and the development of interpretive fire programs.

5.0 COOPERATION WITH OTHER AGENCIES AND ORGANIZATIONS

Where appropriate, cooperative agreements with other agencies and organizations will be developed to facilitate fire management, information sharing, training, and annual planning. Cooperative burns across neighboring properties are to be encouraged to avoid unnecessary fire lines on DPR and neighboring properties. Cooperative agreements will be updated as necessary. When other agencies are burning DPR properties, the PASU, FMO, and DISU must give day-of-burn approvals.

5.1 N.C. Forest Service

The N.C. Forest Service (NCFS) is responsible for wildfire control on all forested lands in North Carolina. DPR and NCFS have entered into a Cooperative Forest Fire Control Agreement (See Appendix 3).

5.2 Other Agencies and Organizations

Cooperative fire management and training agreements with local, state, and federal agencies and organizations other than NCFS will be considered, especially when those agencies own land near or adjacent to a park or if those agencies can provide support for fire management. There is a general acknowledgement that no one agency can accomplish all that needs to be done with prescribed and wildfires. At the time of writing, DPR has Memoranda of Understanding with the NCFS, the Wildlife Resources Commission, and The Nature Conservancy.

5.3 Content of Cooperative Agreements

Agreements may include but not be limited to the following points:

- Who is in charge, and when, for various types of fire management and fire suppression actions.
- Release of liability
- Minimum training standards.
- A review of any specific park management or suppression issues that are to be addressed during either wildfires or prescribed fires.
- Levels of authority and channels of communication.
- Who communicates with the media concerning what types of incidents.

- Provisions for information sharing and joint training.
- Reimbursable costs for equipment, salaries, and services, if any.

5.4 Approval of Cooperative Agreements

All proposed cooperative agreements at the park or district level will be submitted through the PASU, DISU, and NRPM to the DDOP in written form for approval. All Division level agreements will be reviewed by the DDPN and the DDOP. The DDOP will forward all division level cooperative agreements to the Director for review and approval in coordination with DNCR.

6.0 PARK FIRE MANAGEMENT PLANNING

There are two main components to Fire Management in State Parks, Wildfire Response and Prescribed Fire Implementation, each need to address the overall goals of fire on DPR properties and the operational management options. Emergency Response Plans address the what-if of wildfire on DPR properties. Park Emergency Response Plans must include a thorough understanding of the park's fire ecology and integrate a wildfire response taking into account operational and resource management goals. Information should be collected from a variety of sources so that the plan can accurately address goals and objectives.

6.1 Emergency Response Planning

Each park's Emergency Response Plan (ERP) will be developed through the collaboration of park staff, the DISU, NRP staff, and personnel from other appropriate agencies or organizations. Each park's ERP must be reviewed and approved biannually by the DISU and DDOP.

Each ERP that covers wildfire response will be reviewed annually at a meeting between the PASU or designee and the NCFS district forester or designee, as required by the current cooperative agreement between DPR and NCFS.

Periodic revisions to park boundaries, specific burn unit maps, prescribed fire management goals, etc. may be handled through consultation with appropriate DPR staff, including the NRP, and other qualified personnel as needed. The PASU will collaborate with the NRP in determining if the changes warrant review and approval at the DISU level. If major changes to a park's fire plan are proposed, the PASU will review those revisions through the normal chain of command and approval.

6.2 Prescribed Fire Planning and Management

The Park Prescribed Fire Planning will need to include the following information related to prescribed fire:

- Park's prescribed fire management goals.
- Ecological considerations, including historical fire regime.
- Emergency response specific to the park.
- Objectives for education, interpretation, and/or public engagement.
- Equipment and resources needed.
- Visitor use during and after fires.
- Copies of all park-specific, fire-related cooperative agreements with other agencies, organizations, or adjacent landowners.
- A park map or maps, showing roads, firebreaks, access routes, smoke sensitive areas, fire hazard areas, and resource sensitive areas. The areas covered include satellite properties managed by the park unit.
- Emergency response plan

6.3 Wildfire Planning and Management

All unplanned ignitions or prescribed fires that exceed control will be managed as wildfires. Under the terms of the MOU between the DPR and the NCFS, the NCFS will assume overall command on wildfires that require their assistance. The annual ERP review with the NCFS will include access, pre-determined fire lines, and potential sites for indirect attack.

Each park will coordinate with the local NCFS staff, NRP staff, and other appropriate sources to determine the most appropriate management strategies for wildfires or escaped prescribed fires. Fire suppression planning must address the following topics:

- Criteria for imposing burning restrictions or park closures in accordance with the severity of forest fire conditions, in coordination with NCFS.
- Procedures for detecting, locating, and reporting wildfires in the park.
- Expected local or regional fire behavior patterns.
- Identification of wildfire suppression strategies that will minimize secondary impacts to park resources.
- Identification of restoration criteria for suppression actions.
- Delineation of specific duties for each staff member in case of a wildfire.
- Criteria and procedures for visitor evacuation and other public safety measures.

On days when a red flag warning is declared, or when the NCFS readiness level five is reached, or at the discretion of the PASU:

- Park staff will increase the frequency of patrols.
- Open fires may be prohibited.
- All unusual smoke will be checked by park staff to determine its origin.

6.4 Wildfire Response

Crew safety is the primary concern at all times during fire response operations. Untrained and improperly equipped personnel are not to be placed on the fire line, and at no time will crew safety be compromised when fighting a wildfire. In the event a wildfire is declared park staff will appoint an Initial Attack Incident Commander. If a prescribed fire is declared a wildfire the burn boss will transition into or delegate an incident commander. DPR burn bosses and incident commanders are expected to know when to request assistance from outside agencies, when to pull personnel off the line, and to adequately brief the crew about all safety issues prior to beginning response activities, including escape routes, special terrain or fuel concerns, and emergency contingencies.

The full range of suppression techniques may be considered, with the level of response being the responsibility of the NCFS's on-site incident commander. Where practical, all appropriate measures should be taken to minimize secondary impacts to the park's natural and cultural resources. Although the characteristics of wildfires are difficult to predict, prior planning and adequate preparation can reduce the adverse impacts of fire suppression activities, e.g., by identifying pre-existing control lines.

If the incident commander deems it appropriate, then unplanned or escaped fires may be managed by allowing them to burn out to established, defensible fire lines, such as roads, trails, streams, or other fire lines. During or following all wildfires, the NRP will be promptly notified so they can assess ecological damage to the natural resources and recommend remedies.

6.5 Burn Units and Fire Lines

Prescribed fire units will have discrete, but not necessarily permanent, boundaries. The names and boundaries can and do change with time. The defining document for any burn unit is the prescription and accompanying map. Whenever possible, prescribed fire units will encompass as much of a particular habitat type as possible limited by logistics and smoke management considerations. Larger burn units have many advantages and it is encouraged to make a prescription as large as safely, operationally, and ecologically possible. Units may be burned in combination with others or subdivided at the discretion of the burn boss, EBC, and FMO to address resource needs, personnel, logistics, smoke, etc.

Each unit's fire lines will, whenever possible, utilize pre-existing barriers, such as roads, hiking trails, streams, and shorelines. New control lines may need to be created. Plowed lines are allowed, but should be avoided whenever possible, particularly at ecotones. In general, the least destructive methodology that is safe and effective should be utilized. All DPR properties with plans to burn on perimeter burn units must have control lines in close proximity to the property boundaries capable of controlling prescribed and wildfires. Ultimately it is the burn boss in consultation with the EBC, FMO, and PASU who will decide the best method if new lines are to

be created. Fire lines can be kept open through blading with dozers, raking, disking, mowing, blowing, or other methods.

6.6 Burn Unit Prescriptions

Burn Unit Prescriptions are a required document for all North Carolina prescribed fires and is required by state law to be in the possession of the burn boss on every fire. The prescription contains detailed information defining where and how a prescribed fire will be conducted and the contingencies in case of escape. A prescription may describe a single burn unit or multiple burn units; the burn unit(s) is defined by the maps associated with the prescription.

Prescriptions will be developed through the collaboration of park staff, the EBC, FMO, the NRP, NCFS staff, and other appropriate resources as needed. Unit prescriptions will address all the ecological, logistical, meteorological parameters and safety concerns that are required for any given unit. Weather parameters will be expressed as an acceptable range across which ignition may occur and should include parameters for the appropriate season(s) of burn.

Prescriptions are to be reviewed before each use and updated, if needed to reflect changes in a unit's management status, vegetation, etc. Particular attention should be paid to a unit's management goals, burn rotation, rare species, smoke management, hazards, emergency extraction points, and general ecological parameters.

The EBC, FMO, or natural resource staff will have the latest preferred format for new prescriptions. Most prescription formats are acceptable as long as they contain at minimum the following information. Those marked with an asterisk are required by state law (Appendix 2, North Carolina Prescribed Burning Act), all others are DPR requirements.

- *Landowner name and address (implicit in a park burn plan)
- *A description of the area to be burned
- *A map of the area to be burned
- *An estimate in tons of the fuel to be burned
- *The objectives of the prescribed burning.
- *A list of the acceptable weather conditions and parameters for the prescribed burning sufficient to minimize the likelihood of smoke damage and fire escaping into adjacent areas.
- *The name of the NC certified burner responsible for the burn
- *A summary of the methods that are adequate for the particular circumstances involved to be used to start, control, and extinguish the prescribed burning.
- *Provision for reasonable notice of the prescribed burning to be provided to nearby homes and businesses to avoid effects on health and property.
- DPR Signature Page
- Complexity Analysis
- ICS Form 214 or equivalent for recording crew members and events of the day

- Latitude and Longitude of the burn
- Smoke Sensitive Areas (SSAs)
- Emergency access points
- Natural communities
- Burn objectives
- Rare or exotic species, ecological or safety hazards
- Organization and Equipment
- Burn Categories
- KBDI
- Special Situations/Instructions
- Pre burn checklist and post-burn evaluation

All new and existing prescriptions must be reviewed and approved by the FMO (or the EBC in the absence of the FMO) prior to implementing the prescription.

All prescriptions will contain a complexity analysis as described in the National Wildfire Coordinating Group Prescribed Fire Complexity Rating System Guide (PMS 424 or its replacement). Unit prescriptions that receive a high complexity rating will be performed only with outside agency coordination and with personnel experienced on similar complexity fires. The FMO will determine during day-of-burn notifications whether the complexity analysis remains appropriate.

6.7 Burning Categories and NCFS Readiness Plan Levels

Prescribed fires conducted by NC DPR staff can occur under any NCFS Burning Category as long as the Division follows NCFS Smoke Management Guidelines. The NCFS updates their smoke management guidelines and posts them on their website as needed to comply with federal and state laws and internal policies. DPR will adhere to their policies as they evolve.

Prescribed fires will be allowed under NCFS Readiness Plan levels 1-4. Prescribed fire is allowed under Level 5 only in extraordinary circumstances and with approval of the NCFS. Each Forest Service District has a constantly updated readiness level that is found on their website as well as definitions of the readiness levels.

6.8 Pre-Burn Checklist and Notifications

Prior to ignition, the public will be notified via a press release to be coordinated through the Division PIO. This notice will inform the public of the anticipated dates and times of the prescribed fire(s) and will briefly address the management goals. This press release will also alert the public to the potential for smoke in and around the park.

Day-of-burn approvals must be received by the Division's FMO and the DISU (or acting DISU) prior to ignition. Approvals may occur in person, by telephone, or by email, but must be

received prior to ignition. In the absence of the availability of the FMO, technical approval can be performed by the EBC, NRPM, or their designee. Prescribed fires will either be cancelled or will be suppressed as soon as safely possible if the pre-burn checklist cannot be completed or if changes in weather, smoke management, or fire behavior exceed prescription parameters. It will be the responsibility of the burn boss to ensure that all personnel and equipment requirements specified in the pre-burn checklist have been met, that all weather parameters are within prescription, and that appropriate warning signs are in place.

The completed pre-burn checklist must confirm the following points:

- Park has an approved fire management plan and prescribed fire plan.
- Proper burning permit obtained.
- All necessary equipment fully operational.
- Firebreaks inspected and determined to be adequate.
- Emergency protocols covered.
- Spot weather forecast has been obtained if required.
- Notifications made to: DPR PIO; NCFS; local fire departments; and any neighbors that have requested notice.
- Adequate protection in place for protecting vulnerable red-cockaded woodpecker trees, eagle nests, and park facilities.
- Warning signs, closures, or other public information in place.
- Adequate crew on-site and all crew members meet DPR firefighter training (or satisfy requirement of an MOU) and protective equipment requirements.
- All crew members have a radio or a partner with one.
- On-site weather parameters measured and ALL key parameters within prescription.
- Smoke dispersal conditions adequate; personnel posted at potential trouble spots.
- Emergency notification information collected for all personnel

The pre-burn notifications to the FMO and DISU will require the following information prior to approval:

- Prescription name
- Prescription acreage
- Complexity rating
- Weather Parameters
- Staff on site
- Burn boss
- Equipment on hand
- District Readiness plan
- Who has been notified; by whom; when; how?

6.9 Post-burn Mop Up and Summary

In areas with concerns about neighboring property, park facilities, high fuel loads, lingering smoke, etc., all fire will be extinguished and the fire line cold trailed at the discretion of the burn boss. Burn units will remain closed to visitors until the PASU and/or burn boss deem conditions to be safe.

The FMO and DISU shall be notified after ignition is completed following the proper chain of command. The FMO and/or DISU will then contact the DDOP notifying of the completion of the burn.

Mandatory follow-up checks will be made at least once during the evening of the day of the burn and the morning following the burn. Additional checks will be at the discretion of the burn boss or PASU. There are two types of post burn summaries for prescribed fires. One is the Activity Log (Form ICS 214, readily available online). The second covers fire effect and ecological information (DPR Post Burn Evaluation, Appendix 4). Both should be uploaded into the fire management database within 30 days of the fire. Both forms are completed by the burn boss; the original will be kept in the park office files, with copies uploaded into the fire management database. All wildfires and escaped prescribed fires will also be reported via a PR-63.

7.0 SMOKE MANAGEMENT

7.1 Smoke Management Parameters

The burn boss has the authority and responsibility to limit impacts to Smoke Sensitive Areas. Prescriptions are to be written so that prescribed fires will be ignited under conditions that maximize combustion efficiency and minimize emissions. All fires will be scheduled to enhance convection and dispersion and to ensure that the smoke plume moves away from smoke sensitive areas. NCFS tracks fire-related smoke across the state via its Voluntary Smoke Management Program. This program tracks the volume of fuel scheduled for burning and informs cooperators of smoke limits on any given day. Smoke management requirements and limits vary across NCFS Districts, and it will be the responsibility of the burn boss to ensure compliance with all local regulations as well as with NCFS's Smoke Management Guidelines.

If nighttime smoke inversions are expected, all fire operations should be completed by one hour before sundown. The Low Visibility Occurrence Risk Index can be used to predict nighttime inversions.

Smoke sensitive areas must be identified prior to ignition, and information on all SSA's must be included in the prescription. Any potential SSA's within 5 miles of the park should be considered when writing the prescription.

The burn boss has the authority and responsibility to cease ignitions if poor smoke dispersal or decreased visibility become significant on adjacent property or roads. To reduce the hazard of impaired visibility due to smoke on roads near a prescribed burn site, large, easy-to-read signs warning of smoke on the road will be posted when needed. If necessary, staff will be stationed at appropriate locations to warn approaching vehicles. Traffic control assistance from local law enforcement personnel is to be requested as needed.

To minimize the health and safety hazards of smoke resulting from prescribed burns, burns will be conducted when meteorological conditions and with firing techniques that will keep the environmental impacts of the smoke within acceptable limits. If the burn prescription meets the NCFS smoke management criteria, then smoke management issues should be minimal. Predictive tools for smoke management are in constant development and it is the responsibility of Division burn bosses to stay current on the tools available.

7.2 Weather Monitoring

Weather parameters are to be closely monitored prior to and during ignition. Up-to-date fire weather and spot weather forecasts will be obtained prior to ignition when burning on category 1, 2, and 5 days. On-site weather conditions (temperature, relative humidity, probability of ignition, fine fuel moisture) prior to and during the fire should be collected.

It is critical that the burn boss remain fully informed regarding fire weather and that all weather parameters remain within prescription during the burn. The Division could face serious legal consequences and containment costs if a prescribed fire is ignited out of prescription and escapes.

If discrepancies arise between the fire weather forecast and the spot weather, then burn bosses should ignite only after reconciling those differences. If discrepancies cannot be reconciled, then the burn will be canceled.

It is important to note that each prescription's weather parameters will be expressed in ranges; differing combinations of those ranges will accommodate a variety of on-site weather conditions and could result in a variety of fire intensities and behaviors. When considering the interactions between weather, fuel models, and topography, burn bosses are expected to possess the knowledge and skill to reasonably anticipate fire behavior. In all instances, ignition should be based on the most conservative interpretation of the fire weather.

7.3 Test Fire

Test fires are to be ignited near the location that has been selected as the starting point for the prescribed fire and in fuel types common to the burn unit. The main fire is not to be ignited until the test fire is deemed to have demonstrated acceptable fire behavior and smoke management. If the test fire does not behave as anticipated, then it will be extinguished, and the fire canceled.

8.0 TRAINING STANDARDS

Anyone participating in prescribed fires or wildfires on DPR-managed lands will be required to obtain training ensuring that they have the skill to safely conduct prescribed burns, control minor wildfires, and provide assistance to NCFS on major wildfires. All Division field staff will keep a record of fire training certificates in the DPR Training/History/Awards database or submit copies to the FMO.

8.1 Basic Fire Crew Certification

All Division field staff participating in any aspect of fire management are required to have basic fire crew certification. This certification is open to any Division employee and requires:

National Wildfire Coordinating Group (NWCG) S-130 Firefighter Training; S-190 Introduction to Wildland Fire Behavior; IS-100 Introduction to ICS; L-180 Human Factors on the Fireline; IS-700 An Introduction to the National Incident Management System.

Demonstrated proficiency with the DPR radio system.

Demonstrated proficiency with assigned firefighting equipment.

8.2 Maintenance of Basic Firefighter Certification

Basic firefighter status does not expire, but all Division fire personnel are encouraged to participate in at least one prescribed burn every year and to attend an annual refresher training (e.g., RT 130). Fire personnel must maintain proficiency with DPR's radio and fire control equipment.

8.3 Burn Boss Certification

The Division's goal is to have a certified burn boss at every park that utilizes prescribed fire. Following basic fire crew certification, any Division employee may apply for certification as a burn boss by completing the following:

- Approval of the candidate's supervisor.
- Annual Work Capacity Test at the moderately strenuous level that includes at minimum a 2-mile hike with a 25-pound pack in 30 minutes.
- NWCG courses S290/390.
- Participation in an ecological burn class similar to RX 310 or classes or experience deemed equivalent by the DFMT.
- Participation in a minimum of six prescribed burns outside of burn boss apprentice burns.
- Certification from the NCFS through the Prescribed Burning Act.
- Plan and direct a minimum of two prescribed burns, one of which must be as an apprentice burn boss under the supervision of a DPR-certified burn boss.

The participation in six prescribed burns can be accomplished at any time during the certification process and be accomplished either within or outside the Division. With the exception of the certification by the NCFS as an NC Prescribed Burner, all other DPR burn boss requirements must be completed prior to conducting apprentice burns

Application for burn boss status will be made to the Division's Fire Management Team by the applicant's fireline supervisor. Based on training and experience, the DFMT will confer burn boss status for geographical, size and/or complexity restrictions, or to require additional training. The FMO can in writing approve exceptions to the restrictions of the DFMT for geographical, size or complexity. The DFMT will forward recommendations for burn boss status to the Division Director for approval. Copies of the letter of approval will be forwarded to the DDOP, the DISU and NRPM. A low complexity burner can reapply to the DFMT for moderate complexity fires once they think their experience and training dictate.

8.4 Maintenance of Burn Boss Certification

To maintain certification, a burn boss must plan and direct at least one prescribed burn in a two-year period. If the certification lapses it can be reinstated by completing one apprentice burn under a DPR burn boss or NC state certified burner.

8.5 Participation by Non-DPR Staff

Because of liability and safety issues, non-DPR staff who do not meet the DPR criteria for basic fire crew certification and/or who do not have the proper personal protective equipment (see Section 9.3) are generally not allowed access to the burn area when a prescribed fire is in progress. Training standards for non-DPR staff are addressed in the cooperative agreements between DPR and the other organizations. The burn boss can make exceptions to the training requirement, for instance with the media, as long as the visitor is supplied with PPE and is accompanied by fire trained DPR staff. The burn boss can make exceptions to the training and PPE in special cases for media and others involved in educational programs, but this must be cleared in advance by the FMO, DISU and DDOP.

8.6 All Hazard Dispatching of DPR Staff

Park staff have the opportunity to serve on nationally qualified Incident Management Teams upon supervisor's approval. Training standards for Incident Management Team participation are set forth in PMS 310-1 the National Incident Management System: Wildland Fire Qualification System Guide. Training and qualifications must be current and maintained by FMO or designee.

9.0 EQUIPMENT AND SAFETY

Under no circumstances will fires be ignited without the minimum equipment and personnel specified in the prescription. All safety procedures will be vigorously enforced, safety equipment will be used properly at all times and every precaution will be taken to minimize risks and avoid injuries.

All Division safety guidelines apply to activities involving any fire management equipment, including chainsaws, weed eaters, tractors, pumper units, bush axes, or similar tools. All fire crews must be instructed in the safe and proper use of all equipment. This should be accomplished by using fire control safety as a documented topic at park safety meetings. For prescribed burns, equipment instructions will be included in the pre-burn team briefing.

9.1 Equipment Inventory

The equipment needs for prescribed burns will be specified in the unit prescription and will depend on management goals, burning conditions, and the size of the burn unit. An inventory of fire control equipment, including type, quantity, condition and location will be documented in each park's fire management plan.

9.2 Physical Fitness

All participants in fire management activities must possess physical strength sufficient to work on heavy manual tasks for considerable periods of time under trying conditions. Crew members are expected to inform the burn boss of any health limitations prior to ignition. The Burn Boss, Incident Commander or DISU should not allow any person to participate in a burn if a physical condition exists that would cause that person to be a hazard to themselves or to others, or that would prevent efficient performance of the duties required for wildfire control.

9.3 Personal Protective Equipment

All fire crew personnel will wear the mandatory clothing and personal safety equipment listed below. Because of safety and overriding liability issues, under no conditions will personnel without flame resistant clothing be allowed on the fire line or in an area where fire management activities are occurring.

Mandatory Clothing

- Body covering: flame-resistant fire shirt and fire pants; or 1-piece flame resistant jumpsuit.
- Gloves: Leather or combination leather and cotton.
- Boots: Minimum 8-inch leather with no steel toe.
- Hard Hat approved by OSHA for fire applications.
- Portable fire shelters.

- Safety glasses or goggles.

Optional Clothing

- Kerchief
- Flame-resistant face and neck flap.
- Respirator or other device to minimize smoke inhalation.

9.4 Communications

Every crew member must have a radio or be paired with someone who does. All participants must be familiar with DPR radio guidelines and procedures. Clear and common text will be used at all times; calls signs will not be allowed.

9.5 First Aid

Fully stocked first-aid kits and an ample supply of drinking water must be located within all vehicles involved in prescribed burns or wildfire control. Fireline medical incidents will use the 8-line Medical Incident Report or equivalent found in the NWCG Incident Response Pocket Guide. The incident commander or burn boss will make the decision if operations must cease in the event of an injury requiring the evacuation of any crew member.

9.6 Pre-burn Briefing

A team briefing and site inspection will be conducted before each burn. The following points are to be covered in the pre-burn briefing and at any team meeting during wildfire suppression:

- Identification of safety zones and escape routes
- Walking or driving tour of the unit if possible.
- Entry and pick-up locations for emergency medical personnel.
- Fuel models, vegetation types, ignition patterns, and anticipated fire behavior.
- Heat exhaustion prevention and treatment.
- Emergency procedures and phone numbers.
- Location of first aid.
- Radio check.
- Team assignments, equipment locations, and any special circumstances.
- Confirmation that all crew members meet minimum DPR equipment standards.
- Physical condition of all crew members adequate for their task is confirmed.
- Burn unit map for each crew member

9.7 Public Safety

Access by anyone other than DPR personnel will be allowed only under conditions that have been agreed to in advance by the burn boss or incident commander and PASU. Under no circumstances will the public be granted access to any burn unit during a prescribed fire or wildfire. Staff vehicles must turn lights and flashers on. All trails leading to the burn unit will be signed as closed, and a pre-burn inspection will be conducted to confirm that no park visitors are in areas closed as part of the burn unit prescription.

10.0 MONITORING AND REPORTING

10.1 General Information

The total acreage burned and the environmental effects of wildfires and prescribed burns will be recorded and monitored to determine if the park's fire management objectives are being met. It is vital that staff keep accurate burn records and develop a long-term monitoring plan, since fire effects will dictate revisions to the park's fire management plan. A reporting and monitoring program will be included in each park's fire management plan, and a record of all wildfires and prescribed fires will be maintained by the park, with copies of all information provided to the NRP.

Prescriptions, maps, and DPR Post Burn Evaluations (Appendix 4) must be uploaded into the Fire Management Database. The database will be administered by the Natural Resource Program but access is available to all superintendents and burn bosses. The DPR Post Burn Evaluation in Appendix 4 is an example of the types of data and format in use at the time of writing these guidelines. The form and specific data may change but the essential information will likely remain unchanged.

The PASU should obtain assistance as needed from other Division personnel or volunteers in developing and implementing a monitoring program. Monitoring techniques must be consistent, simple, repeatable, and reliable. The procedures used should be standardized methods tailored to individual sites, situations, and needs.

Fire effects monitoring will provide park staff with opportunities to develop long term cooperative research projects with a variety of agencies, including university level scientists. Park staffs are strongly encouraged to identify and enlist the participation of appropriately skilled and knowledgeable researchers and volunteers in documenting pre- and post-burn fire effects.

10.2 Wildfires

For wildfires or escaped prescribed fires, the PASU will document the fire's effects by completing the applicable sections of the DPR Post Burn Evaluation and uploading it to the fire database.

All wildfires must be reported to the FMO for evaluation and possible referral to DFMT for review of suppression efforts. Additional monitoring activities will be conducted as deemed appropriate. Where feasible, wildfire areas will be maintained as burn units and incorporated into the prescribed fire plan. All escaped prescribed fires will be reviewed by the DFMT and their report sent to the Division Director. A PR-63 must be completed for all wildfires.

10.3 Prescribed Burns

A Burn Summary Report will be recorded for every prescribed fire, with copies to be retained by the park and uploaded to the DPR fire database. The type and extent of prescribed burn monitoring will depend upon the circumstances of each burn unit. Considerations in developing an appropriate monitoring program are the burn management objectives; the significance of species and communities; the amount of information available to help predict fire effects; the experimental design; and the logistical constraints. Rare and exotic species, or species or areas of special ecological concern will be noted and mapped.

10.4 Photo Transects

As a minimum level of monitoring, photo reference points can be established on fire units. When using this technique, the locations of these transects are to be permanently recorded so that photo orientation will remain consistent. Photos are to be taken with the same orientation and should include some type of reference tool indicating height.

Photos should be taken during the growing season so that the unit's vegetation composition and structure can be documented. When combined with the pre-burn inventory data, these photos will document a visual baseline for future comparisons. After a unit is burned, a set of annual follow-up photos can be taken as closely as possible to the same date as the baseline set for that unit. In addition, a set of before and after photos should be taken for every prescribed burn.

10.5 Rare Species and Communities

The presence of rare species and communities of special concern warrants detailed planning and monitoring data collection. Rare species and communities should be monitored to determine if the biological objectives stated in the park's fire management plan and burn unit prescription are being met. For these special elements, permanent research plots should be established and sampled to evaluate the effects of prescribed burning, and to determine if changes in the burning program are needed. Protection protocols will be addressed in the burn unit prescription for all rare or sensitive species and community types.

10.6 Additional Monitoring

Additional monitoring activities may include collecting specific information on fire behavior or documenting overall site and biological effects. Examples of burn monitoring tasks are:

- Observing fire behavior and weather during burning to compare predicted and observed fire characteristics.
- Documenting the fire event, fire containment, and logistical problems to provide a permanent record and to improve future performance.
- Recording effects on fuels to determine if fuel modification goals were achieved.
- Measuring ecological parameters to assess achievement of biological objectives.
- Photo points.

11.0 PUBLIC RELATIONS

The public and media outlets will be informed about the status and results of significant wildfires, the scheduling of individual prescribed burns, and the objectives of the overall prescribed burning program.

11.1 Wildfires

As soon as is reasonable, the PASU will notify the Director's office and the Division PIO through the DISU and the DDOP of any wildfire or escaped prescribed fire that is on or threatening park property. If the fire continues for more than one day, the PASU will give the PIO a daily status report. All media information releases concerning wildfire will be coordinated through the Division PIO.

News releases concerning park burning restrictions or closures due to fire hazards will be coordinated through the Division PIO in compliance with Staff Directive 87-2, and upon recommendation of the NCFS staff.

11.2 Prescribed Burns

The PASU will coordinate with the Division PIO in developing a press release for local media outlets. Adjacent landowners will be notified of the anticipated burn date by telephone, letter, visit, email, or press release.

The PASU will have a clear understanding of the history of fire in the park and will be expected to clearly explain the purposes and objectives of the burn to the press or public. The PASU will respond appropriately to any complaints or requests for information as soon as possible and will document all public participation and comments.

11.3 Access to Burn Sites by Media Personnel

Any fire that is approved for media coverage by the DDOP and the burn boss will be subject to the points covered in Section 8.5.

12.0 INTERPRETATION

Building a public awareness of the role of fire in our environment is important in supporting the goals of sound fire management. Educational programs on fire ecology will be incorporated into the park's Interpretation and Education program, visitor center exhibits, and other public programs.

12.1 Interpretive Activities

Each park participating in prescribed burns will develop information as part of any program on fire, or as a handout when responding to public inquiries. Where appropriate, fire ecology should become an Interpretation and Education theme. Preparation of video footage and photos during a burn is encouraged for future uses in programming and training. Technical assistance will be provided by the DIES, NRP staff, and other sources as appropriate.

12.2 Restrictions

No prescribed burn will be advertised or used as an interpretive program unless authorized by the PASU and the DPR PIO. Visitor access will be subject to the conditions of Section 8.5.

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Appendix 1

Article 78. Regulation of Open Fires.

§ 106-940. Purpose and findings.

The purpose of this Article is to regulate certain open burning in order to protect the public from the hazards of forest fires and air pollution and to adapt such regulation to the needs and circumstances of the different areas of North Carolina. The General Assembly finds that open burning in proximity to woodlands must be regulated in all counties to protect against forest fires and air pollution. The General Assembly further finds that in certain counties a high percentage of the land area contains organic soils or forest types which may pose greater problems of forest fire and air pollution controls, and that in counties in which a great amount of land-clearing operations is taking place on these organic soils or these forest types, additional control of open burning is required. The counties subject to the need for additional control are classified as high hazard counties for purpose of this Article. (1981, c. 1100, s. 2; 1981 (Reg. Sess., 1982), c. 1385, s. 1; 2011-145, s. 13.25(w).)

§ 106-941. Definitions.

As used in this Article:

- (1) "Department" means the Department of Agriculture and Consumer Services.
- (2) "Forest ranger" means a forest ranger designated under G.S. 106-896(3).
- (3) "Person" means any individual, firm, partnership, corporation, association, public or private institution, political subdivision, or government agency.
- (4) "Woodland" means woodland as defined in G.S. 106-904. (1981, c. 1100, s. 2; 1989, c. 727, s. 218(53); 1991 (Reg. Sess., 1992), c. 890, s. 3; 1997-443, s. 11A.119(a); 2011-145, ss. 13.25(w), (x); 2017-108, s. 12(e).)

§ 106-942. High hazard counties; permits required; standards.

(a) The provisions of this section apply only to the counties of Beaufort, Bladen, Brunswick, Camden, Carteret, Chowan, Craven, Currituck, Dare, Duplin, Gates, Hyde, Jones, Onslow, Pamlico, Pasquotank, Perquimans, Tyrrell, and Washington which are classified as high hazard counties in accordance with G.S. 106-940.

(b) It is unlawful for any person to willfully start or cause to be started any fire in any woodland under the protection of the Department or within 500 feet of any such woodland without first having obtained a permit from the Department. Permits for starting fires may be obtained from forest rangers or other agents authorized by the forest ranger to issue such permits in the county in which the fire is to be started. Such permits shall be issued by the ranger or other agent unless permits for the area in question have been prohibited or cancelled in accordance with G.S. 106-944 or G.S. 106-946.

(c) It is unlawful for any person to willfully burn any debris, stumps, brush or other flammable materials resulting from ground clearing activities and involving more than five contiguous acres, regardless of the proximity of the burning to woodland and on which such materials are placed in piles or windrows without first having obtained a special permit from the Department. Areas less than five acres in size will require a regular permit in accordance with G.S. 106-942(b).

- (1) Prevailing winds at the time of ignition must be away from any city, town, development, major highway, or other populated area, the ambient air of which may be significantly affected by smoke, fly ash, or other air contaminates from the burning.
- (2) The location of the burning must be at least 500 feet from any dwelling or structure located in a predominately residential area other than a dwelling or structure located on the property on which the burning is conducted unless permission is granted by the occupants.
- (3) The amount of dirt or organic soil on or in the material to be burned must be minimized and the material arranged in a way suitable to facilitate rapid burning.
- (4) Burning may not be initiated when it is determined by a forest ranger, based on information supplied by a competent authority that stagnant air conditions or inversions exist or that such conditions may occur during the duration of the burn.
- (5) Heavy oils, asphaltic material, or items containing natural or synthetic rubber may not be used to ignite the material to be burned or to promote the burning of such material.
- (6) Initial burning may be commenced only between the hours of 8:00 A.M. and 4:00 P.M. and no combustible material may be added to the fire between 4:00 P.M. on one day and 8:00 A.M. on the following day, except that when favorable meteorological conditions exist, any forest ranger authorized to issue the permit may authorize in writing a deviation from the restrictions. (1981, c. 1100, s. 2; 1981 (Reg. Sess., 1982), c. 1165; c. 1385, s. 2; 2002-132, s. 1; 2011-145, ss. 13.25(w), (x); 2013-265, s. 15; 2017-108, s. 12(f).)

§ 106-943. Open burning in non-high hazard counties; permits required; standards.

(a) The provisions of this section apply only to the counties not designated as high hazard counties in G.S. 106-942(a).

(b) It shall be unlawful for any person to start or cause to be started any fire or ignite any material in any woodland under the protection of the Department or within 500 feet of any such woodland during the hours starting at midnight and ending at 4:00 P.M. without first obtaining a permit from the Department.

Permits may be obtained from forest rangers or other agents authorized by the forest ranger to issue such permits in the county in which the fire is to be started. Such permits shall be issued by the ranger or other agent unless permits for the area in question have been prohibited or cancelled under G.S. 106-944 or G.S. 106-946. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w), (x).)

§ 106-944. Open burning prohibited statewide.

During periods of hazardous forest fire conditions or during air pollution episodes declared pursuant to Article 21B of Chapter 143 of the General Statutes, the Commissioner is authorized to prohibit all open burning regardless of whether a permit is required under G.S. 106-942 or G.S. 106-943. The Commissioner shall issue a press release containing relevant details of the prohibition to news media serving the area affected. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w), (x).)

§ 106-945. Permit conditions.

Permits issued under this Article shall be issued in the name of the person undertaking the burning and shall specify the specific area in which the burning is to occur, the type and amount of material to be burned, the duration of the permit, and such other factors as are necessary to identify the burning which is allowed under the permit. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w).)

§ 106-946. Permit suspension and cancellation.

Upon a determination that hazardous forest fire conditions exist the Commissioner is authorized to cancel any permit issued under this Article and suspend the issuance of any new permits. Upon a determination by the Environmental Management Commission or its agent that open burning permitted under this Article is causing significant contravention of ambient air quality standards or that an air pollution episode exists pursuant to Article 21B of Chapter 143 of the General Statutes, the Commissioner shall cancel any permits issued under authority of this Article and shall suspend the issuance of any new permits. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w), (x).)

§ 106-947. Control of existing fires.

(a) If a fire is set without a permit required by G.S. 106-942, 106-943, or 106-944, and is set in an area in which permits are prohibited or cancelled at the time the fire is set, the person responsible for setting the fire or causing the fire to be set shall immediately extinguish the fire or take such other action as directed by

any forest ranger authorized to issue permits under G.S. 106-942(c). In the event that the person responsible does not immediately undertake efforts to extinguish the fire or take such other action as directed by the forest ranger, the Department may enter the property and take reasonable steps to extinguish or control the fire and the person responsible for setting the fire shall reimburse the Department for the expenses incurred by the Department. A showing that a fire is associated with land-clearing activities is *prima facie* evidence that the person undertaking the land clearing is responsible for setting the fire or causing the fire to be set.

(b) If a fire requiring a permit under G.S. 106-942(c) is set without a permit and a forest ranger authorized to issue such permits determines that a permit would not have been issued for the fire at the time it was set, the person responsible for setting the fire or causing the fire to be set shall immediately take such action as the forest ranger directs to extinguish or control the fire. In the event the person responsible does not immediately undertake efforts to extinguish the fire or take such other action as directed by the forest ranger, the Department may enter the property and take reasonable steps to extinguish or control the fire and the person responsible for setting the fire shall reimburse the Department for the expenses incurred by the Department. A showing that a fire is associated with land-clearing activities is *prima facie* evidence that the person undertaking the land clearing is responsible for setting the fire or causing the fire to be set.

(c) If a fire is set in accordance with a permit but the burning is taking place contrary to the conditions of the permit, any forest ranger with authority to issue permits in the area in question may order the permittee in writing to undertake the steps necessary to comply with the conditions of his permit. If the permittee is not making a reasonable effort to comply with the order, the forest ranger may enter the property and take reasonable steps to extinguish or control the fire and the permittee shall reimburse the Department for the expenses incurred by the Department. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w), (x).)

§ 106-948. Penalties.

Any person violating the provisions of this Article or of any permit issued under the authority of this Article shall be guilty of a Class 3 misdemeanor. It is not a violation of this Article or any permit issued under the authority of this Article if a person unintentionally fails to comply with a setback requirement so long as the difference between the required setback and the actual setback is no more than five percent (5%) of the required setback. The penalties imposed by this section shall be separate and apart and not in lieu of any civil or criminal penalties which may be imposed by G.S. 143-215.114A or G.S. 143-215.114B. The penalties imposed are also in addition to any liability the violator incurs as a result of actions taken by the Department under G.S. 106-947. (1981, c. 1100, s. 2; 1989 (Reg. Sess., 1990), c. 1045, s. 11; 1993, c. 539, s. 835; 1994, Ex. Sess., c. 24, s. 14(c); 2011-145, s. 13.25(w), (x); 2011-394, s. 2(h).)

§ 106-949. Effect on other laws.

This Article shall not be construed as affecting or abridging the lawful authority of local governments to pass ordinances relating to open burning within their boundaries. Nothing in this Article shall relieve any person from compliance with the provisions of Article 21B of Chapter 143 of the General Statutes and regulations adopted thereunder. In the event that permits are required for open burning associated with land clearing under the authority of Article 21B of Chapter 143 of the General Statutes, the authority to issue such permits shall be delegated to forest rangers who are authorized to issue permits under G.S. 106-942(c). (1981, c. 1100, s. 2; 2011-145, s. 13.25(w), (x).)

§ 106-950. Exempt fires; no permit fees.

(a) This Article does not apply to any fires started, or caused to be started, within 100 feet of an occupied dwelling house if the fire is confined (i) within an enclosure from which burning material may not escape or (ii) within a protected area upon which a watch is being maintained and which is provided with adequate fire protection equipment.

(a1) Except in cases where the Commissioner has prohibited all open burning during periods of hazardous forest fire conditions or during air pollution episodes declared pursuant to Article 21B of Chapter 143 of the General Statutes, this Article does not apply to, and no air quality permit shall be required for, the burning of polyethylene agricultural plastic used in connection with agricultural operations related to the growing, harvesting, or maintenance of crops, when all of the following conditions apply:

- (1) The burning does not violate any State or federal ambient air quality standards.
- (2) The burning is conducted between an hour after sunrise and an hour before sunset.
- (3) The fire is set back at least 250 feet from any paved public roadway and at least 500 feet from any dwelling, group of dwellings, commercial or institutional establishment, or other occupied structure not located on the property on which the burning is conducted.
- (4) The burning is conducted in a manner such that it does not constitute a public nuisance.
- (5) The burning is conducted by any of the following means:
 - a. By professionally manufactured equipment solely for the purpose of plastic mulch burning or incineration and approved by the Commissioner.
 - b. By a fire that is enclosed in a noncombustible container.
 - c. By a fire that is restricted to a pile no greater than eight feet in diameter built upon ground cleared of all combustible material.

(b) No charge shall be made for the granting of any permit required by this Article. (1981, c. 1100, s. 2; 2011-145, s. 13.25(w); 2015-286, s. 4.39(a); 2017-102, s. 15.2.)

§ 106-951: Reserved for future codification purposes.

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Article 80.
North Carolina Prescribed Burning Act.

§ 106-965. Legislative findings.

The General Assembly finds that prescribed burning of forestlands is a management tool that is beneficial to North Carolina's public safety, forest and wildlife resources, environment, and economy. The General Assembly finds that the following are benefits that result from prescribed burning of forestlands:

- (1) Prescribed burning reduces the naturally occurring buildup of vegetative fuels on forestlands, thereby reducing the risk and severity of wildfires and lessening the loss of life and property.
- (2) The State's ever-increasing population is resulting in urban development directly adjacent to fire-prone forestlands, referred to as a woodland-urban interface area. The use of prescribed burning in these woodland-urban interface areas substantially reduces the risk of wildfires that cause damage.
- (3) Many of North Carolina's natural ecosystems require periodic fire for their survival. Prescribed burning is essential to the perpetuation, restoration, and management of many plant and animal communities. Prescribed burning benefits game, nongame, and endangered wildlife species by increasing the growth and yield of plants that provide forage and an area for escape and brooding and that satisfy other habitat needs.
- (4) Forestlands are economic, biological, and aesthetic resources of statewide significance. In addition to reducing the frequency and severity of wildfires, prescribed burning of forestlands helps to prepare sites for replanting and natural seeding, to control insects and diseases, and to increase productivity.
- (5) Prescribed burning enhances the resources on public use lands, such as State and national forests, wildlife refuges, nature preserves, and game lands. Prescribed burning enhances private lands that are managed for wildlife refuges, nature preserves, and game lands. Prescribed burning enhances private lands that are managed for wildlife, recreation, and other purposes.

As North Carolina's population grows, pressures resulting from liability issues and smoke complaints discourage or limit prescribed burning so that these numerous benefits to forestlands often are not attainable. By recognizing the benefits of prescribed burning and by adopting requirements governing prescribed burning, the General Assembly helps to educate the public, avoid misunderstandings, and reduce complaints about this valuable management tool. (1999-121, s. 1; 2011-145, s. 13.25(aa).)

§ 106-966. Definitions.

As used in this Article:

- (1) "Certified prescribed burner" means an individual who has successfully completed a certification program approved by the North Carolina Forest Service of the Department of Agriculture and Consumer Services.
- (2) "Prescribed burning" means the planned and controlled application of fire to naturally occurring vegetative fuels under safe weather and safe environmental and other conditions, while following appropriate precautionary measures that will confine the fire to a predetermined area and accomplish the intended management objectives.
- (3) "Prescription" means a written plan prepared by a certified prescribed burner for starting, controlling, and extinguishing a prescribed burning. (1999-121, s. 1; 2011-145, s. 13.25(aa), (bb); 2013-155, s. 15.)

§ 106-967. Immunity from liability.

- (a) Any prescribed burning conducted in compliance with G.S. 106-968 is in the public interest and does not constitute a public or private nuisance.
- (b) A landowner or the landowner's agent who conducts a prescribed burning in compliance with G.S. 106-968 shall not be liable in any civil action for any damage or injury caused by or resulting from smoke.
- (c) Notwithstanding subsections (a) and (b), this section does not apply when a nuisance or damage results from a negligently or improperly conducted prescribed burning. (1999-121, s. 1; 2011-145, s. 13.25(aa), (bb).)

§ 106-968. Prescribed burning.

(a) Prior to conducting a prescribed burning, the landowner shall obtain a prescription for the prescribed burning prepared by a certified prescribed burner and filed with the North Carolina Forest Service of the Department of Agriculture and Consumer Services. A copy of the prescription shall be provided to the landowner. A copy of this prescription shall be in the possession of the responsible burner on site throughout the duration of the prescribed burning. The prescription shall include:

- (1) The landowner's name and address.
- (2) A description of the area to be burned.
- (3) A map of the area to be burned.
- (4) An estimate of tons of the fuel located on the area.
- (5) The objectives of the prescribed burning.
- (6) A list of the acceptable weather conditions and parameters for the prescribed burning sufficient to minimize the likelihood of smoke damage and fire escaping onto adjacent areas.
- (7) The name of the certified prescribed burner responsible for conducting the prescribed burning.
- (8) A summary of the methods that are adequate for the particular circumstances involved to be used to start, control, and extinguish the prescribed burning.
- (9) Provision for reasonable notice of the prescribed burning to be provided to nearby homes and businesses to avoid effects on health and property.

(b) The prescribed burning shall be conducted by a certified prescribed burner in accordance with a prescription that satisfies subsection (a) of this section. The certified prescribed burner shall be present on the site and shall be in charge of the burning throughout the period of the burning. A landowner may conduct a prescribed burning and be in compliance with this Article without being a certified prescribed burner if the landowner is burning a tract of forestland of 50 acres or less owned by that landowner and is following all conditions established in a prescription prepared by a certified prescribed burner.

(c) Prior to conducting a prescribed burning, the landowner or the landowner's agent shall obtain an open-burning permit under Article 78 of this Chapter from the North Carolina Forest Service of the Department of Agriculture and Consumer Services. This open-burning permit must remain in effect throughout the period of the prescribed burning. The prescribed burning shall be conducted in compliance with all the following:

- (1) The terms and conditions of the open-burning permit under Article 78 of this Chapter.
- (2) The State's air pollution control statutes under Article 21 and Article 21B of Chapter 143 of the General Statutes and any rules adopted pursuant to these statutes.
- (3) Any applicable local ordinances relating to open burning.
- (4) The smoke management guidelines adopted by the North Carolina Forest Service of the Department of Agriculture and Consumer Services.
- (5) Any rules adopted by the North Carolina Forest Service of the Department of Agriculture and Consumer Services, to implement this Article.

(d) The North Carolina Forest Service may accept prescribed burner certification from another State or other entity for the purpose of prescribed burning under this Article. (1999-121, s. 1; 2011-145, ss. 13.25(aa), (bb), (xx); 2013-155, s. 16; 2015-263, s. 26.)

§ 106-969. Adoption of rules.

The North Carolina Forest Service of the Department of Agriculture and Consumer Services may adopt rules that govern prescribed burning under this Article. (1999-121, s. 1; 2011-145, s. 13.25(aa), (bb); 2013-155, s. 17.)

§ 106-970. Exemption.

This Article does not apply when the Commissioner of Agriculture has cancelled burning permits pursuant to G.S. 106-946 or prohibited all open burning pursuant to G.S. 106-944. (1999-121, s. 1; 2011-145, s. 13.25(aa), (bb).)

§ 106-971: Reserved for future codification purposes.

§ 106-972: Reserved for future codification purposes.

§ 106-973: Reserved for future codification purposes.

§ 106-974: Reserved for future codification purposes.

§ 106-975: Reserved for future codification purposes.

§ 106-976: Reserved for future codification purposes.

§ 106-977: Reserved for future codification purposes.

§ 106-978: Reserved for future codification purposes.

§ 106-979: Reserved for future codification purposes.

MEMORANDUM OF UNDERSTANDING
BETWEEN
NORTH CAROLINA DEPARTMENT OF AGRICULTURE & CONSUMER SERVICES
N. C. FOREST SERVICE
AND
NORTH CAROLINA DEPARTMENT OF NATURAL & CULTURAL RESOURCES
DIVISION OF PARKS AND RECREATION

Fire Management Activities

6-19-2018

Date

6-19-2018

Date

6-6-18

Date

By: Scott Bissette

Scott Bissette
Assistant Commissioner, NCFS

By: N. David Smith

N. David Smith
Chief Deputy Commissioner, NCDA&CS

By: Carol A. Tingley

Carol A. Tingley
Acting Director, NC Division of Parks and Recreation

This agreement is hereby entered into between the North Carolina Forest Service, hereinafter referred to as "NCFS" and the North Carolina Division of Parks and Recreation, hereinafter referred to as "Parks" for fire management activities. These activities will include prescribed burning, training, wildfire prevention and mitigation, and wildfire suppression.

NCFS is charged under General Statute 106, with the responsibility of protecting state and private forest lands from forest fires and is also charged with enforcing laws relating to forest fires.

Parks is charged under the General Statutes and the State Parks Act with enforcing all laws and regulations pertaining to the management of state park property.

It is to the mutual advantage of both divisions to coordinate their efforts in prescribed burning activities, wildfire prevention and mitigation, wildfire suppression, and training.

This MOU begins July 1, 2018 and expires June 30, 2023. This agreement supersedes any other agreement in place. Either party may rescind their participation in this MOU with a letter describing the circumstances for withdrawal. This agreement will cease to exist 30 days after the letter is received by the other agency. There should be an effort to collaboratively solve any differences prior to seeking the termination of this agreement. Amendments will be agreed upon and submitted through the normal process for approval and will become a permanent part of this agreement once approved.

Key Agency officials for this agreement are the Forest Protection Director, NCFS and the State Parks Chief of Operations and Program Manager for Natural Resources. These agency officials will coordinate an Annual Meeting to discuss and review statewide coordination of training, prescribed burning, wildfire prevention and mitigation, and wildfire suppression.

I. NCFS AGREES:

Wildland Fire

1. The District Forester will alert Park Superintendents when conditions are at Readiness Plan Level (RPL) 4 or 5. NCFS will provide Parks with advice on the use of fire (i.e., campfires, grills, etc.) in a given park. These notifications will include information on burn restrictions or bans and recommendations regarding the use of prescribed fire.
2. District Forester or county ranger/forester will notify Park Superintendents immediately of any wildfires on or threatening Parks property and will attempt to coordinate responses through the Park Superintendent or his/her designee.
3. To assume direction for the control of any wildfire either on or threatening a park as quickly as possible. To control wildfires utilizing the National Incident Management System (NIMS) concepts/Incident Command System.
4. Firefighter and public safety must be first priority in all fire management activities. Methods used to suppress wildfires should minimize impacts on Parks land, commensurate with effective control, resource values to be protected and fiscal constraints of both agencies. However, whenever possible and when mutually agreed to, methods used to control wildfires on Parks property will be planned and implemented so that secondary impacts, including plowed or bulldozed lines, are minimized. NCFS will attempt to consult with Parks on

suppression activities prior to initiating them on Parks property, consistent with the existing threat/safety issue related to the activity.

5. Record and document paid out suppression costs incurred for wildfire suppression on Parks within 60 days of close out. This information will be made available to NCFS and Parks directors.
6. NCFS has nationally qualified Type 2 and 3 Incident Management Teams (IMT). The NCFS will make available training opportunities and dispatches to Parks personnel. This opportunity will assist with improving knowledge of NIMS and specifically fire behavior, smoke management and overall fire suppression. Positions on the IMTs for Parks personnel will be discussed and filled as determined by the NCFS Fire Chief. Parks personnel must be willing to meet the requirements for team training and dispatches. This includes obtaining and maintaining a certification in Defensive Driving from the NCDMV or National Safety Council approved course every 3 years.

Wildland Fire Rehabilitation

1. Firelines constructed on Parks property by NCFS actions or the actions of others under the direction of NCFS, will only be repaired to prevent water quality degradation, to satisfy regulatory requirements, and/or to correct a safety hazard.
2. Parks can contract with a private contractor to carry out any rehabilitation work above and beyond what NCFS does to meet the requirements in item 1 above. NCFS can provide a list of private contractors.

Prescribed Fire

1. To make a site visit to the proposed prescribed burn area, if requested by Parks. This should be conducted as part of the planning process and not occur on the day of the burn. The NCFS does not approve burning plans or firing operations but can provide recommendations related to the burn plan or firing operations.
2. The District Forester or designee will coordinate burn permits, provide smoke management information, provide updates on fire weather conditions, and related information, when notified by Parks of a prescribed fire planned on Parks property.
3. On the day of a prescribed burn the District Forester or representative will record smoke management information reported by Parks. Parks' burn boss or permittee will be notified if tonnage limits are exceeded.
4. The District Forester or representative will alert the Park Superintendent when severe wildfire conditions exist and may advise Parks not to conduct prescribed burns during unfavorable burning conditions or when Fire Readiness Plans are 4 or 5. NCFS will keep a record of any advisement provided to Parks.
5. Provide Parks fire suppression assistance and/or take control of fire suppression activities if a prescribed fire escapes.

Training

1. Provide to Parks notice of pending wildland fire training.
2. To provide to Parks the NCFS training calendar that outlines NCFS fire training.
3. Work collaboratively in developing a Fire Management program for Parks properties.
4. Provide an opportunity for Parks to be a part of the NC Fire Environment Committee (FEC).
5. To assist parks personnel in becoming qualified to instruct NWCG courses for their personnel. All Parks instructors must meet the requirements set forth in the current NWCG Field Manager's Course guide (FMCG). Qualified Parks instructors may issue NWCG course certificates for NWCG courses taught, provided they are teaching the full standard NWCG courses.

Wildfire Mitigation

Provide a Firewise assessment on park facilities outlined in a plan developed by the local NCFS District Forester or designee and Parks superintendent.

II. PARKS AGREES:

Wildland Fire

1. Park Superintendents will report any wildfire detected either on or threatening Parks, to the District Forester, county ranger/forester or through the 911 system and will initiate immediate and appropriate management actions upon the detection of any unplanned or uncontrolled ignition.
2. Each park will develop and maintain an Emergency Response Plan for annual review with the District Forester. Where applicable, such plans will include procedures for evacuations in the event of a wildfire and review of the park's prescribed fire management plan.
3. To turn over direction of control of any wildfire to the first NCFS Incident Commander to arrive. Parks will provide intelligence related to existing roads, streams, topographic features, resources and personnel allocation to assist in determining strategy and tactics.
4. Firefighter and public safety must be first priority in all fire management activities. Methods used to suppress wildfires should minimize impacts on Parks land, commensurate with effective control, resource values to be protected and fiscal constraints of both agencies. However, whenever possible and when mutually agreed to, methods used to control wildfires on Parks property will be planned and implemented so that secondary impacts, including plowed or bulldozed lines, are minimized. NCFS will attempt to consult with Parks on suppression activities prior to initiating them on Parks property, consistent with the existing threat/safety issue related to the activity.
5. To make available Parks personnel for assignments up to 7 days, equipment, and facilities for use in suppressing wildfire. Parks personnel will have and use appropriate wildland fire

Personal Protective Equipment (PPE) to include at a minimum, fire shirt, fire pants, fire shelter, gloves, eye protection, 8" leather lace up leather boots, and hard hat. Parks will be responsible for all costs associated with their personnel and equipment involved in fire suppression and mop up.

6. To appoint a Parks Resource Advisor "READ" and/or Agency Representative "AREP" to an incoming NCFS Incident Management Team in support of wildland fire suppression efforts on Parks' lands. This position will be staffed for the duration of the incident or until released by the NCFS Incident Commander.
7. Parks superintendents will consult with the NCFS District Forester when the danger of wildfires increases on Parks land and restrict the use of fire when conditions warrant such action.
8. The Director of State Parks and the State Forester will discuss the closing of any park to public use when wildfire conditions warrant such action.

Prescribed Fire

1. During times when NCFS is operating on a Fire Readiness Plan 4, the Parks representative will notify the District Forester or designee at least one day prior to any prescribed burn. Parks will not burn when Fire Readiness Plans is a 5.
2. Parks agrees to follow and to abide by the North Carolina Smoke Management Plan and to work collaboratively with NCFS to identify plan revisions that provide additional opportunities for prescribed burning.
3. Park Superintendent, designee, or burn boss will contact the NCFS District Operations Officer prior to ignition of all prescribed fires, for notification purposes and to report smoke management information. In addition, Parks staff will contact NCFS District Operation Officer after firing is complete to verify acres completed for entry into the NC Smoke Management Database. The Parks representative will contact the office of the county ranger and County 911 Dispatch on the day of the prescribed burn.

Training

1. To train personnel in the Incident Command System. The following courses or equivalent may be used in accordance with NIMS standards.
 - IS-700: NIMS, An Introduction
 - IS-800 National Response Plan: An Introduction
 - ICS-100: Introduction to ICS
 - ICS-200: Basic ICS
2. To train personnel who may have prescribed fire or wildfire assignments. The minimum fire training will be I-100, S-130, S-190, and L-180. (Introduction to ICS, Basic Firefighter, Weather and Fire Behavior)
3. To participate in the Certified Prescribed Burner Program Chapter 106, Article 80 §106-965.

4. To participate in the NC Fire Environment Committee (FEC).
5. To ensure that all Parks instructors meet NWCG standards when instructing NWCG courses. NWCG certificates will only be issued for NWCG courses taught by qualified instructors.
6. Parks Fire Management Officer or designee may initiate task books for FFT1, ICT5, ICT4, FAL3, FAL2, Single Resource Boss, or positions that will represent Parks according to NIMS standards. Once the task book is completed the final evaluator (Qualified and current at the same position), will sign the "Final Evaluator's Verification" section and the Fire Management Officer or designee will sign the "Agency Certification" section.

Wildfire Mitigation

1. To participate in the NC Firewise Program.

III. BOTH AGENCIES AGREE:

1. District Foresters and Park Superintendents and/or their designees shall make themselves available to meet to review burning plans for the year and discuss technical input. This will include areas that Parks would like to see impacts minimized due to tactical operations during fire suppression activities.
2. Park closures warranted by wildfire will be a joint decision following consultation between the Director of State Parks and the State Forester.
3. Parks and NCFS public information officers will consult prior to issuing press releases regarding burning restrictions or closures in state parks.
4. Park Superintendents and District Foresters during annual meetings will review fire management plans for every park. Development of an Annual Action Plan for each park will include, but not be limited to:
 - A. Logistics: Including personnel and equipment; maps; communications (including the programming of radio frequencies, loaning of radios, etc.) and notification procedures; contact information; operational procedures; and other matters as deemed necessary by the participants.
 - B. Parks Fire Management Planning: a review of each park's wildfire management and response plan and, if applicable, the park's prescribed fire management plans.
 - C. Response Plans: Including a review of the incident command system responsibilities; appropriate park specific suppression methods and response levels based on fire severity and location; access points and containment lines; ecological issues; minimization of secondary impacts from suppression; public safety; facilities protection, etc.
5. Coordinate opportunities for personnel to assist on prescribed and wildfire operations. Agency field leadership will be the primary contacts to ensure this occurs.
The purpose is to:

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- A. Allow personnel to gain prescribed and wildfire experience that includes fire behavior, smoke management, and work on certifications to build capacity in wildland fire management.
 - B. Allow interaction among agency personnel to help build strong working relationships
6. In the event of a significant wildfire or escaped prescribed fire on Parks property requiring NCFS assistance, NCFS will assume overall responsibility upon arrival or as soon as is feasible and appropriate. Parks may be included in a unified Incident Command System. Parks will be included and involved in all discussions and decisions on suppression actions on Parks property. Parks' personnel, equipment, and facilities will be made available for suppression operations.
 7. The NCFS Chief of Law Enforcement will assign a lead investigator to conduct investigations of wildfires or escaped prescribed fires that originate on or involve Parks lands. In the event of an escaped prescribed fire, Parks will designate someone to work with the lead NCFS investigator in determining the reason for the escape.
 8. Exceptions to full suppression may be ecologically and logically warranted and are expected to be fully considered, regardless of the ignition source, especially in ecologically sensitive areas and where full suppression is clearly not warranted owing to fire location, size, intensity, etc. Where conditions are deemed acceptable and are agreed to by both parties, wildfires or escaped prescribed fires will be allowed to burn out to established lines or natural barriers in lieu of establishing new plowed or bulldozed lines on Parks property.
 9. Whenever possible, all appropriate measures will be taken to minimize secondary suppression impacts to Parks property. Preferred suppression methods on Parks property will be discussed in the annual fire plan reviews and planned to the extent possible. This will include the identification of ecologically sensitive areas, equipment options and preferences, access areas and existing fire lines, pre-determined control lines, burn-out blocks, etc.
 10. In the event of a significant wildfire or escaped prescribed fire on state park property, a post-fire review will be conducted. NCFS and Parks will conduct this review within six months of the fire. Participants in the review will include at a minimum: NCFS Fire Chief or designee, District Forester or designee, Parks personnel, the burn boss, and other administrative personnel as deemed appropriate. The review of escaped Parks prescribed fires will include, but not be limited to, a review of the pre-burn approval records; burn boss and crew qualifications; unit prescriptions; predicted and on-site weather parameters; required and on-site fire management resources; anticipated and actual fire behavior and factors contributing to the fire's spread; pre-fire response planning; the actual response, including methods and equipment used; and suppression impacts.
 11. Hazardous fuel treatments are recognized as a need that helps reduce the probability of fire occurring or to decrease fire intensity if one does occur. The improved forest health is a benefit to an active hazardous fuel program utilizing various methods to reduce forest fuel loads such as prescribed burning, grinding of fuels, etc. The Community Protection Program (CPP) allows for fuel treatments and reimbursement of costs up to a certain amount per acre. The NCFS administers the program. Parks will coordinate with the District Forester when planning CPP burns to ensure the burn sites go through the process to be included on the list of prescribed burning projects for hazardous fuel reduction. Parks will coordinate with the NCFS Staff Forester that oversees the CPP to ensure invoices meet the requirement for

reimbursement. It is to the mutual benefit of both agencies and the public to conduct these burns on Parks property.

12. On behalf of itself, its officers, directors, members, employees, volunteers, agents, and representatives, each party will be liable for its own acts and omissions, and the results thereof and that it shall not be responsible for the acts or omissions of the other party. The liability includes loss, damage, and personal injury, including death, to each other's property, employees, agents, and contractors occurring in the performance of this MOU.
13. Unless expressly agreed to in separate written agreement, each party shall pay all salaries and benefits to its own employees and shall cover the costs of operation and maintenance of its own equipment, and there shall be no exchange of funds for the obligations described herein.
14. Unless otherwise expressly provided by law, personnel or volunteers of one party shall not be considered to be agents or employees of the other party for any purpose, and no joint venture or principal-agent relationship shall be deemed to exist.

Appendix 4**NC Division of Parks and Recreation
Post Burn Evaluation**

1. Date (Immediately after Burn): _____ Date (Later date as needed): _____
2. *Amount Litter Left (Inches): _____
3. Understory Vegetation (Estimate % Consumed): _____
4. Scorch (Estimate % of crown scorch and % of area affected): <1/3 _____ 1/3-2/3 _____ 2/3+ _____
5. *Spotting/Jumpovers: _____
(Document any spots or jumpovers)
6. Tree Damage (insects, disease, mortality): _____
(For later evaluation)
7. Understory Kill of Undesired Vegetation (Estimate % Top-Killed): _____
8. * Any Smoke Management Violations: _____

(Highway or communities smoked-in; visibility standards exceeded)
9. Any Escape: _____

(Significant escapes that required considerable effort to contain or declared wildfire)
10. *Any Complaints (Explain/From): _____
11. Adverse Effects: _____
(Undesirable resource damage occurred)
12. Restoration Needed: _____
(Erosion control or replanting)
13. Objectives Met/Results: _____

(Describe in detail to determine fire was effective/efficient - % of objectives met/or numerical score entered)
Evaluation By (Immediately after Burn): _____ Date: _____
14. Recommendation for Future Evaluation: _____

(Identify specific needs or resources affected) _____ (Date)
Evaluation By: _____ Date: _____