



**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
PRESCRIBED BURNING
CODE 338
(AC.)**

DEFINITION

Applying controlled fire to a predetermined area.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

- Control undesirable vegetation.
- Prepare sites for harvesting, planting, or seeding.
- Control plant disease.
- Reduce wildfire hazards.
- Improve wildlife habitat.
- Improve plant production quantity and/or quality.
- Remove slash and debris.
- Enhance seed and seedling production.
- Facilitate distribution of grazing and browsing animals.
- Restore and maintain ecological sites.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on forestland, native pasture, pastureland, prairie, wildlife land, hayland, and other lands as appropriate.

CRITERIA

The following criteria are applicable to all purposes.

The procedure, equipment, and the number of trained personnel shall be adequate to accomplish the intended purposes as stated in the burn plan.

The expected weather conditions, human and vehicular traffic that may be impeded by heat or smoke, liability (e.g., utility lines), and safety and health precautions shall be integrated into the timing, location, and expected intensity of the burn.

Weather parameters and other data that affect fire behavior should be monitored during the prescribed burn. Defer burning anytime prolonged drought, approaching weather fronts, and/or high winds create unpredictable fire conditions.

Smoke impacts must be evaluated and measures to protect public safety and health shall be addressed. General considerations for smoke management include moist fuels and head fires generally create more

smoke, smoke at night is more hazardous, and stable air mass conditions can cause air inversions which restrict smoke convection.

Consider the location of utilities, such as electric power lines and natural gas pipelines to prevent damage to the utility and avoid personal injury. Electrical discharge (arcing) can occur due to high concentrations of carbon in smoke columns.

Timing of burning will be commensurate with soil and site conditions to maintain site productivity and minimize effects on soil erosion and soil properties (structure, soil moisture).

NRCS employees role in prescribed burning

Only NRCS employees with current Job Approval Authority (JAA) may assist clients with this practice. Refer to GM 190, Part M1413 (Supplement MI1) for information on policy.

Only NRCS employees acting within the scope of their work and with proper JAA may assist as follows:

- Provide information to a landowner during the planning process of a prescribed burn
- Include Prescribed Burning (338) as an alternative in a conservation plan
- Provide the resources used to develop a burn plan. NRCS staff may not author a burn plan.
- Provide follow-up assistance in the evaluation of the prescribed burn

NRCS Staff may NOT act as burn boss

NRCS Staff may NOT ignite the fire or carry burning drip torch or other ignition devices.

Burns must be done in accordance with state and local laws and regulations. All necessary burning permits must be obtained. When burning near an airport, secure the necessary permission from airport authorities. Notify adjoining landowners, local fire departments, and public safety officials prior to burning. This includes providing adequate signage to affected roads. Burn when the smoke impact to roads and occupied residences is minimized.

CONSIDERATIONS

Burn only when a specific management objective is to be met. Burn frequency shall be determined through an on-site resource evaluation to determine whether identified objectives can be met. Burning frequency will be based on the need to improve the stand condition and the impact on wildlife habitat and pollinators.

Generally, late spring burns hurt sedges, perennial forbs, cool season grasses, and brush. A good rule in the spring is to burn when the desired grass species has no more than one inch of new growth and before forbs have emerged. Fall burns generally benefit forbs and hurt warm season grasses and winter burns benefit sedges and perennial forbs. Frequent burns benefit warm season grasses and infrequent burns benefit forbs and cool season grasses.

Consider impact to cultural resources and threatened and endangered plants and animals when planning this practice.

When burning to suppress undesirable sprouting woody plants, it may be necessary to burn more than once. Implementation of WI NRCS Conservation Practice Standard (WI NRCS CPS), Brush Management (Code 314), is often required to control woody vegetation.

Prescribed fire in woodlands must be approved by a WI DNR Forester or the NRCS State Forester prior to the development of the prescribed burn plan.

Burn crews should include individuals experienced with applying prescribed burning practice. All necessary tools, equipment, and personnel must be on site to contain the fire as planned.

Incorporate existing barriers to fire such as lakes, streams, wetlands, croplands, and roads into the burn plan.

Landowners are liable for any damages caused by fire escaping from their land or caused by smoke blowing into residences, across roads, or airport runways. They may also be liable for fire suppression costs if the fire escapes control.

Burning should be managed with consideration for wildlife needs such as nesting, feeding, and cover.

Refer to WI NRCS CPS, Firebreak (Code 394) for specific guidance when establishing a firebreak. Firebreaks will be planned that will assure sufficient width, length, and site condition to assure adequate protection for Prescribed burning.

Firebreaks

1. Use of existing secondary fire barriers such as roads, streams, wetlands, and croplands are important to the design and layout of this practice.
2. Bare mineral soil or a blackline of burned vegetation is the best primary firebreak; however mowed breaks with green grass may also be used. Burned-in blacklines should be implemented prior to the prescribed burn under conditions that limit rate of spread.
3. At a minimum, firebreaks shall be non-combustible, and at least two times as wide as the height of the adjacent vegetation to be burned. Firebreaks will be of sufficient width and length to contain the expected fire and minimize risk to the resources being protected.
4. Where appropriate, burned firebreaks that the headfire will move towards, should be of adequate width to prevent spillovers or spotting.
5. Remove all snags or brush piles near firebreaks to prevent hot spots and spot fires over firebreaks.

Burn Ignition Conditions

1. Complete a test burn on the downwind side of the burn area to insure that the fire will achieve the planned objectives before the main fire is started.
2. The wind direction must be consistent and the wind velocity is steady and between 3-18 mph.
3. The air temperature must be between 40-80 degrees F.
4. The relative humidity must be between 25-60% (Caution: relative humidity will drop 50% with a 20 degree rise in temperature).

Firing Technique

1. Whether to use a head fire, flank fire, or backing fire is determined by the objective to be accomplished. A head fire will produce a fast moving fire which carries rapidly over the surface. A flank fire burns parallel to the wind. A backing fire is a slow moving, hot fire burning into the wind consuming all combustible materials, except when the mulch layer is wet.
2. Establish primary firebreaks on all sides of the area to be burned and establish backing fires, set fire on upwind side of primary firebreak, trails, roads, rock ledges, and streams. If no physical barriers exist, wetting the vegetation to create a wetline and setting the fire on the upwind edge of the firebreak will accomplish the same purpose. Fire retardant chemicals will make the wetlines more effective.
3. No head fire will be set until sufficient black is in place to control the head fire.

4. Patrol fire lines to watch for and extinguish any spot-over fires resulting from flying embers.
5. Make sure all fire is out before leaving the area. Stumps, logs, dead trees, cow chips, grass clumps, etc., can smolder for hours or even days before they are completely consumed. Smoke produced by these types of fuels tends to gather in low areas when wind conditions calm at dusk. This residual smoke, combined with fog and darkness, can lead to poor visibility on roads near the fire location. Periodic checks of these areas may be necessary for several days. If possible, remove these obstacles prior to ignition to avoid safety concerns and extensive mop up.

PLANS AND SPECIFICATIONS

A written burn plan will be prepared to meet NRCS standards and specifications prior to implementation of this practice. Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan, or other acceptable documentation. Obtain all necessary permits before implementation of the practice.

As a minimum, a burn plan will include the following:

- Landowner information, burn location with acres identified on a plan map.
- Objective of the burn identified.
- Existing vegetation cover documented.
- Required weather conditions for prescribed burn including constraints of temperature, relative humidity, wind direction, wind speed.
- Preparation requirements for the burn area including a map locating planned constructed and/or natural firebreaks, location of the test burn, and identification of areas needing special protection.
- The type and size of firebreaks.
- Notification requirements prior to igniting the burn.
- Permits that will be obtained by the landowner.
- Equipment, manpower needs, and safety requirements. These shall be adequate to safely accomplish the intended purposes.
- An ignition plan narrative (the type of procedure that will be used to accomplish the burn). This plan will include: burn method used, pre-burn preparation, firing sequence, job assignment of burn crew, equipment and materials check list. The job assignments will identify who is assigned to fire patrol, containment, mop up, and suppression.
- Documentation that the landowner has been informed in writing (letter sent by certified mail, return receipt requested) of possible liability for damages if the fire escapes, smoke damage occurs, accidents caused by poor visibility occur, or other damages occur as a result of the prescribed fire.
- Mop-up/post burn evaluation criteria (see WI NRCS FOTG Standard 394, Firebreak).

OPERATION AND MAINTENANCE

The kinds and expected variability of site factors (e.g., fuel condition and moisture content, weather conditions, human and vehicular traffic that may be impeded by heat or smoke, liability, and safety and health precautions) shall be monitored during the operation of this practice. Sufficient fire suppression equipment and personnel shall be available commensurate with the expected behavior of these factors during the time of burning to prevent a wildfire or other safety, health, or liability incident.

Maintenance shall include monitoring of the burned site and adjacent areas until such time as ash, debris, and other consumed material is at pre-burn temperatures.

Complete a post burn evaluation to determine if the objective was accomplished.

FEDERAL, STATE, AND LOCAL LAWS

Users of this standard shall comply with applicable federal, state and local laws, rules, regulations, or permit requirements governing prescribed burning. This standard does not contain the text of federal, state, or local laws.

REFERENCES

USDA, NRCS Wisconsin Field Office Technical Guide (FOTG), Section IV, Practice Standards and Specifications.

USDA, NRCS, National Range and Pasture Handbook, Policy on Prescribed Burning, and Wisconsin Supplement to Appendix A.

USDA, NRCS, Wisconsin Job Sheet 133, Firebreak.

USDA, NRCS, Wisconsin Job Sheet 338, Prescribed Burn Plan.

General Manual 190, Part M1413(Supplement MI1)