NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD
SOUTH DAKOTA SUPPLEMENTS ITALICIZED

PRESCRIBED BURNING

(ac.)
CODE 338

DEFINITION

Applying controlled fire to predetermined area.

PURPOSES

To control undesirable vegetation *and/or maintain or restore the desired plant community*.

Prepare sites for planting or seeding.

Control plant disease.

Reduce wildfire hazards.

Reduce excess plant litter.

Suppress woody plant invasion.

Improve wildlife habitat.

Improve forage production quantity and/or quality.

Slash and debris removal.

Enhance seed and seedling production.

To facilitate distribution of grazing and browsing animals.

CONDITIONS WHERE PRACTICE APPLIES

On all landuses.

GENERAL CRITERIA

Criteria applicable to the development of site specific specifications for all purposes set forth above:

WIND must be steady from 5 to 15 miles per hour. Gusty winds and/or winds shifting greater than 45 degrees from the prevailing wind direction will be avoided. Calm conditions (less than five miles per hour) should be avoided. For management of woody species a 10 to 15 mile per hour wind is preferred.

Relative humidity will be between 25 and 60 percent.

Air temperature will be between 40 and 75 degrees Fahrenheit. This does not apply when burning wetlands in the fall or winter.

Soil moisture from will be sufficient to ensure protection of root crowns and ensure continuation of plant growth after burning. Soil moisture will be moist and wet to the touch.

Fuel load will be at least 1,200 pounds per acre of fine fuel (dry grass and litter) with at least 50 percent standing.

Firebreaks will be utilized to contain the fire in the area to be burned. Vegetative, nonvegetative, burned firebreaks, and/or natural barriers will be used alone or in combination to control the fire. On all downwind sides of the area to be burned, a backing fire will be used to strengthen mowed, tilled, wet line, roads, or natural barrier firebreaks. No head fires will be set until all firebreaks are in place and of sufficient width. Please refer to the Firebreak standard (394) for criteria to design specifications for firebreaks.

Weather conditions will be monitored for three days in advance of planned burn dates. Fire crews and equipment need to be on standby status to take advantage of favorable burning conditions.

The Weather Service will be contacted for a 24-hour weather forecast prior to the burn. Monitor onsite weather conditions immediately before and during the burn. Burning will be postponed if weather conditions are expected to fall outside of the prescribed burning plans prescription.

Fire danger categories of very high or extreme issued by the National Weather Service, will restrict or prohibit prescribed burning.

Wind direction must be planned to carry smoke away from major roads or highways, bridges, airports, and occupied residences. When burning within one mile of an airport, secure necessary permission from airport authorities.

Temperature inversions prevent vertical rise of smoke, causing it to remain in the lower atmosphere. Burning will be avoided during temperature inversions.

Burning technique will be determined by the type of fuel, management objectives, and firebreaks. A head fire (burning with the wind) produces a fast moving fire, which carries rapidly. Head fires are best for the control of weeds, woody species, and removal of excess litter. A backing fire (burning into the wind) is a slow moving hot fire. Backing fires are best for the construction of firebreaks and for burns designed to alter the existing plant community. For instance, a slow moving, hot backing fire conducted in a mixed stand of cool and warm season species when the cool seasons are actively growing and the warm seasons are still dormant, will stress the cool season plants and benefit the warm season species.

Personnel and equipment will be sufficient to conduct the burn as well as control any potential escape of the burn. Generally, a minimum of five people will be required to conduct a burn. This number will increase as the size of the burn increases, more volatile fuel types are involved, fire lines are minimally prepared, and available equipment is less than adequate. Equipment needs are variable, depending on the complexity of the burn and fuel types. It is desirable to have at a minimum, one water sprayer capable of applying at least 20 gallons per minute of volume and with a minimum of 200 gallons of capacity. A tractor equipped with a disk or chisel is desirable to have on standby. Hand tools such as fire swatters, shovels, rakes, and drip torches are recommended.

Mop up the fire before leaving the scene making sure that all fire is out before everyone leaves the site of the burn.

ADDITIONAL CRITERIA

Criteria to maintain or restore desired plant community; or to improve forage quantity and/or quality.

Generally, frequency of burning should not be more than once every four years, to stimulate vigor and production of warm season grasses, or to maintain diversity of mixed grass communities.

Time of burning should generally be just prior to or soon after dormancy break of the target species in the spring. A rule-of-thumb is to burn when the desired species has less than one inch of new growth.

Key species to be maintained or restored will be identified in the burn plan.

Criteria to enhance seed production

Burning to enhance seed production will be done at an interval that is known to maximize the benefits for species being managed.

Criteria to improve or manipulate grazing distribution.

Frequency of burning will be based on the extent and duration of grazing responses, but should generally not be more than once every four years.

Key grazing areas and key species should be adjusted in relation to grazing responses.

Time of burning should be generally just prior to or soon after dormancy break of key species in the spring.

Criteria to reduce excess plant litter, preparing sites for planting or seeding, and reducing wildfire hazards.

Burning for maintenance of ungrazed wildlife areas, grass stands under long-term retirement programs, or ungrazed forestland should be carried out once every three to four years, depending upon the amount of litter accumulation and the vigor of the stand.

Burning to reduce excess plant litter prior to seedbed preparation for grass seedings should be carried out immediately prior to seeding.

Burning to reduce wildfire hazard should be based on local situations and the priority of protection needed.

Criteria to suppress woody plant invasion

Time of burning to suppress deciduous, re-sprouting species, such as western snowberry, should be in late summer or early fall when the target species are most susceptible to root damage. Coniferous species, such as cedar or pine, should be burned after the desirable herbaceous species start growth. Coniferous species are more

susceptible to fire when they are small, from one to three feet tall.

Frequency of burning should be based on regrowth of target species, weighed against forage and/or wildlife habitat considerations.

Target species to be suppressed will be identified in the burn plan.

Potential fire damage to nontarget species will be recognized.

Criteria to improve wildlife habitat or to enhance wetland diversity.

Frequency of burning should not be more than once every four to five years to maintain diversity of upland habitat and once every two to three years to maintain diversity of wetland habitat.

Time of burning should be based on the objectives of habitat manipulation for targeted wildlife species. Spring burns tend to enhance many warm season grasses, but may be detrimental to cool season grasses and annual forbs. Spring burns usually increase stem density of re-sprouting woody species, while summer burns tend to reduce vigor and produce root mortality. In some cases, winter burns may be most effective in enhancing wetland plant diversity.

Time of burning to enhance grassland habitat should be in the spring, just prior to or soon after dormancy break of the desired wildlife preferred species. A rule-of-thumb for grasses is to burn when the desired species have less than one inch of new growth.

Limited habitat in the home range of the targeted wildlife species should limit the burn area to one-third to one-half of the total area managed for wildlife habitat.

Key animal species and habitat component to be improved or enhanced will be identified in the burn plan.

Potential fire damage to nontarget plant and animal species will be recognized

CONSIDERATIONS

Information of the effects of fire on individual plant and animal species can be found on the world wide web at www.fs.fed.us/database/feis/. The site is called the "Fire Effects Information System" and is maintained by the U.S. Forest Service.

Precautions are needed to avoid air contamination from toxic substances or poisonous plants, which may exist in the area to be burned. Smoke from burning poison ivy and other poisonous plants can be toxic to susceptible individuals and animals.

Precautions are needed near high voltage electrical transmission lines to prevent electrical discharge, due to high concentrations of carbon particles suspended in smoke columns. Burning plans will be designed and applied so large fire fronts or high dense smoke columns will not cross under or contact high power electrical transmission lines.

Precautions may be needed to avoid impacts to threatened and endangered plant and animal species. Please refer to the South Dakota Technical Guide, Section 1, subsection – Threatened and Endangered Species for a listing of potential impacts from prescribed burning.

Assure that easements, leases, or contracts do not contain a "no burning" clause on areas planned for prescribed burning.

Prescribed burning specifications must adhere to all applicable Natural Resources Conservation Service (NRCS) policies contained in the General Manual and National Range and Pasture Handbook as well as state and local regulations, such as South Dakota Codified Laws Chapter 34-35, Range and Forest Fire Prevention, and SD Air Pollution Control Program, Chapter 742:6:04 – Open Burning Regulations. All necessary approval, permits, and variances must be obtained by the landowner prior to conducting the burn.

Only NRCS personnel with the required training and certification are authorized to assist with the planning and application of prescribed burns. The prescribed burn plan must be approved by an NRCS employee having the appropriate job approval authority for prescribed burning. Procedures for obtaining job approval authority can be found in the National Range and Pasture Handbook, Appendix A.

Under poor growing conditions, low plant vigor, and/or downward trend, range or pasture will require one full growing season of deferment from grazing, or be incorporated into a prescribed grazing plan that provides for post burn deferments.

Under good growing conditions, good plant vigor, and static or improving trend, grazing can begin as soon as grasses reach normal range readiness or six to eight inches of new growth for pasturelands.

The prescribed burn plan must be signed and dated by the landowner or operator accepting responsibility for liability under the plan

Most state, local, and federal agencies and fire departments have equipment and personnel available to assist in the planning and application of this practice. Use of these resources is strongly encouraged.

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

Existing barriers such as lakes, streams, wetlands, roads, and constructed firebreaks are important to the design and layout of this practice.

Adjoining landowners *will* be notified prior to burning.

Liability and safety precautions are to be planned before the burn and monitored during the burn.

PLANS AND SPECIFICATIONS

Specifications for burning (burn plan) shall be prepared for each site. Specifications shall be recorded using approved specification sheets, job sheets, narrative statements in the conservation plan, or other acceptable documentation.

OPERATION AND MAINTENANCE

Post burn evaluations, as identified in the prescribed burn plan, must be completed to determine whether the objectives of the burn were achieved.

To achieve benefits of the prescribed burn, other practices in the conservation management system need to be carried out as planned.