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TO THE TRANSPORT OF THE PROPERTY OF THE PROPER

FOREST FIRE MANUAL

for
Fire Wardens
and
other Cooperators



State of Minnesota
Department of Natural Resources
Division of Forestry
St. Paul, Minnesota

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1985

DNR

Forest Fire Manual

This manual is dedicated to those men and women who serve the State of Minnesota as Fire Wardens and also their families, who have given of their time and themselves in order to assist in the prevention and suppression of wildfires.

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MINNESOTA DIVISION OF FORESTRY

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OTHER NUMBERS

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Purpose of Manual

This manual is concerned chiefly with wildfire prevention and suppression, and contains a brief outline of authority, procedure and methods to be followed by Fire Wardens, other individuals and organizations cooperating with the Minnesota Division of Forestry in fire protection work.

It is not intended that this manual should cover all aspects of fire prevention and suppression, but it is meant to serve as a practical guide. The chief aim is to indicate and outline briefly the most efficient procedures in the work that Fire Wardens and other cooperators may be called upon to do. It is hoped that the general policy and procedure as herein outlined will result in a more uniform and efficient fire protection program.

The Need for Forest Protection

The natural resources of any state or nation are the basic values upon which the economic and social standards are built and maintained.

The natural resources of Minnesota are the heritage of its citizens and the responsibility for their protection and use rests with all of the people. It is, therefore, the duty of every individual, as a citizen, to interest themselves at all times in ways and methods that may lead to better use and protection of the state's natural resources.

The fourth largest source of revenue in Minnesota is now derived directly from forest products and wood using industries. Thousands of men and women are employed in the forest industries and the value of timber processing from the forest to finished products never was higher.

This, however, is but the direct benefit derived from the forest. In addition, there are many other valuable uses. The forest furnishes food and shelter for wildlife; it is a reservoir for water, thus helping to prevent floods and erosion and

diminish droughts; and is the basic factor in providing the great recreation area in which all who enjoy the outdoors may hunt, fish, and vacation.

In the past, large forest fires have taken many human lives. Improvements in communications and transportation systems have eased that threat. However, fire continues to destroy property. Every year homes, buildings, crops and other valuable property are threatened by wildfire. Fire prevention and early suppression can reduce the losses and save us all money by reducing direct loss and insurance premiums.

Fire Protection Organization

The Minnesota Division of Forestry has been in existence since 1911 when it was called the Minnesota Forest Service. Many changes in organizational structure and operation have taken place. But one thing that has not changed is the need for, and dependence on the Fire Warden by the Division of Forestry.

By Statute, the Minnesota Division of Forestry is charged with the responsibility of preventing and suppressing wildfires within the forested areas of the State. This responsibility covers a large portion of the State and encompasses a large forestry organization.

The Minnesota Division of Forestry is divided into administrative areas. These vary in size from one county to seven or eight counties. Each Area is comprised of three (3) to six (6) districts, which is the smallest Division unit.

Each district is responsible for wildfire protection on the lands under its jurisdiction. The fire protection program is coordinated by the Area Forest Supervisor.

Fire Wardens are an integral part of this fire protection organization. They assist Forestry personnel in both fire prevention and suppression activities. The main duty of the Fire Warden is the issuance of burning permits. Other duties can include assisting in organizing equipment and crews, firefighting and mop-up. This will vary depending on the fire incidence and the individual Fire Warden's ability, time available and interest.

Forest Laws and Regulations

The Division of Forestry was originally established by the State Legislature primarily as a fire protection agency. The Division of Forestry has gone through numerous phases and name changes in its 75 years of existence.

The laws pertaining to fire are contained in Statutes 88.01 to 88.22. Some of these are printed in the appendix for your reference. You should review these laws and be especially familiar with 88.17, burning permit law and 88.18, appointing of Fire Wardens.

Besides our Forestry laws, there are regulations established by the State Pollution Control Agency. Those PCA regulations that pertain to open burning are also included in the appendix for your information.

There are cases where PCA rules are more restrictive than the forest laws. In these cases, the PCA restrictions take precedence. There may be cases where individual municipalities, townships or counties may have some greater restrictions than the forest laws. As a Fire Warden, you need to be familiar with both the forest laws and other statutes, rules and regulations that affect your local area.

The forest laws are your main guide as a Fire Warden. If other agencies laws are more restrictive, then they must be followed. In some cases, our Fire Wardens are also empowered to write PCA permits. This is especially true near metropolitan areas where many of the PCA and municipal regulations apply.

Selection and Appointment of Fire Wardens

Fire Wardens are interviewed by the District Forester and recommended for appointment. They then complete a Fire Warden Acceptance Card. Upon approval of the Commission by the Area Forest Supervisor, the Fire Warden is notified of acceptance and issued a Commission Card.

In appointing Fire Wardens, consideration is generally given to the location and availability of the individual. In certain locations, the main responsibility of the Fire Warden is the issuing of burning permits and assisting in fire prevention work. In other locations, a large percentage of the Fire Warden's work may include actual fire fighting, in addition to the above responsibilities.

The Fire Warden's Commission Card lists the area in which the Fire Warden is authorized to issue permits. Do not issue permits for any place not in the assigned area as listed on your Commission Card. Anyone wishing a permit elsewhere, must go to a Fire Warden having authority there. It is the location of burning, not the place of residence that matters.

Decommissioning Fire Wardens

Fire Wardens may be decommissioned for various reasons. Most Fire Wardens donate their time and efforts for many years and, at some point in time, decide to retire from the public service. The Fire Warden may move outside the assigned commission area and would not be authorized to carry out the duties unless recommissioned in the new location. In some cases, the individual is no longer interested and may request to be decommissioned as a Fire Warden. In rare cases, an individual may be decommissioned for failure to carry out the duties and responsibilities as assigned to Fire Wardens.

Fire Warden Duties

The primary duty of a Fire Warden is to issue burning permits in accordance with the local regulations as determined by the Area Forester in that particular area.

Fire Wardens should also make every effort to attend training sessions in their respective area. It is important that Fire Wardens know their local Division of Forestry personnel and take an interest in fire prevention in their own neighborhood and township.

Fire Warden Responsibilities

- 1. Report all unauthorized fires to a Forest Officer.
- 2. Be conscious of daily and weekly weather trends and patterns.
- 3. Issue burning permits in accordance with instructions received from your local District Forester or Area Forest Supervisor.
- 4. Fill out the burning permit form completely and accurately.
- 5. Issue burning permits only in person by a Fire Warden. Permits **may not** be issued over the telephone.
- Make sure the permittee understands the local regulations and his or her responsibilities with the burning permit.
- 7. Be aware of special fire hazards in your local area and neighborhood.
- 8. Know where you can obtain equipment, supplies, and firefighters in your township.
- 9. Report any problems or difficulties to your District Forester or Area Forest Supervisor.
- 10. Be a responsible citizen especially regarding burning procedures, as you are a representative of the Division of Forestry.

Fire Prevention

Wildfire prevention is the main goal of the burning permit system. It has proven to be very effective. In areas where the permit system was recently installed, it has cut wildfires in half. You can help by being more than just a "permit issuer". Explain to people why permits are required. Encourage everyone to be careful with their fires. If you would like to do more, contact your Forester for suggestions. Remember, fire prevention saves tax dollars.

The Burning Permit Law

The Burning Permit Law, MN Statutes 88.17, has been the backbone of the Department of Natural Resources, Division of Forestry's fire prevention program since 1925. It has been a factor in reducing the number of fires occurring in Minnesota. This Law, with increased public support and awareness, has been the leading factor in reducing the number of wildfires.

The Burning Permit Law provides the general public with a method of securing a lawful permit to complete necessary burning. It gives the Division of Forestry personnel and other firefighting agencies a method by which permits can be issued under safe conditions. It also provides a system whereby it can be determined which fires are legal and which are not.

As a Fire Warden, your primary job will be the issuance of burning permits. You, as a Fire Warden, commissioned by the Department of Natural Resources, cannot legally charge an individual for issuing a burning permit. However, some townships may provide compensation to duly commissioned Fire Wardens. This is legal, but is the responsibility of the respective town board.

Although Forest Laws do not require a permit when the ground is "snow covered", Pollution Control Agency rules do. Under agreement with the PCA, we will issue permits year around as a courtesy to the public.

Burning Permit Regulations

Open burning of trees and brush in the clearing of land, right-of-way burning and agricultural burning is allowed under permit with the following restrictions:

- 1. The location of burning must not be within 600 feet of an occupied residence, other than those located on the property on which the burning is conducted.
- 2. The prevailing winds at the time of burning must be away from any municipality, other residential property and public roadways.
- 3. Oil, rubber or other similar materials which produce an unreasonable amount of air contaminants or smoke may not be burned.
- 4. Burning must not be conducted within one (1) mile of any military, commercial, county, municipal or private airport or landing strip.

Open burning permits may be issued for:

- 1. Trees
- 2. Brush
- 3. Branches and logging residue
- 4. Dry grass, weeds, leaves and similar vegetation.

 Note leaves may not be burned in the Metro
 Counties.
- 5. Crop residue
- 6. Paper, cardboard and similar dry material generated from homes within a township where no refuse collection service is available.
- 7. Recreational Fires, such as cooking, camp or ceremonial.

A permit is not required if the fire is less than three (3) feet in diameter, has all combustible material cleared from within five (5) feet and is attended at all times.

8. Forest and wildfire management activities recommended by the Department of Natural Resources or other governmental agencies.

Open burning permits may **not** be issued for the following:

- 1. Rubber tires, plastics, tar or asphalt
- 2. Garbage, dump grounds
- 3. Automobile bodies and salvage parts
- 4. Railroad ties
- 5. Animal wastes
- 6. Animal carcasses

These items are listed to help you in your decision to write a burning permit or deny one. You may refuse to issue a permit, or may revoke or limit its use, if in your judgment, the prevailing conditions make the proposed burning unsafe. Plain common sense and sound judgement are as much a part of your decision as are the regulations.

Having a legally authorized fire get out of control is both embarrassing and costly. In an attempt to avoid this situation, a great deal of effort must be made to set up the burning permit regulations that will ensure safe and controlled burning.

If you have any doubts about issuing a burning permit, contact a Forest Officer.

Notification of Regulations

NA-01984-02 F 38 (10/79) State of Minnesota Department of Natural Resources	
TO ALL FIRE WARDENS ///ARCH 30 190-	_
In issuing burning permits, please observe the precautions marked (x) hereunde until further notice.	r
() Stop issuing all permits. () Issue permits for piled debris only. No running fire. (X) Issue permits for () day only after (P.M. All fire to be out by 6:00 A.M. following morning. () Special permits to be issued by DNR Forester only. Please report all unauthorized fires promptly to the undersigned. Signed Henry Heart Area Forest Supervisor Address Hill City, MN	-

The above notice of local burning permit regulations is sent from the Area Forest Supervisor. These regulations should be used as a guide from determining when you may issue a burning permit. Notice of Burning Regulation Cards may be sent at any time. Usually they are sent whenever weather and burning conditions warrant. Keep informed and keep your Notice of Burning Regulations handy for quick reference.

When Burning Permits are Issued

Burning permits are issued only when the burning may be safely done upon such conditions and restrictions as may be prescribed by the Director of Forestry or an authorized Forest Officer.

Issuing Burning Permits

This is the most important part of your job. Make sure that the entries are complete and correct.

Rules to Remember:

- 1. Only issue permits for your assigned township or part of a township. Make sure you know your territory; check your Commission Card.
- 2. Permits are issued for the location where the burning is to take place, not for where the permittee resides.
- 3. Issue permits only for the material, times, and dates according to the current burning regulations sent to you by the Area Forest Supervisor. If the permittee is asking for a special permit that exceeds one or more of the burning regulations, call your District Forester for permission. This may be granted if weather and burning conditions warrant.
- 4. Issue permits for authorized material only. When in doubt, refer to the appendix and/or call a Forest Officer.
- 5. Do not issue permits for any location within a municipality unless authorized by a Forest Officer.
- 6. In some instances, you or the permittee may have to notify the fire department or sheriff's office before burning. This is to save the fire department from making a run if someone else reports the permit as a wildfire. Failure to do this may cost the permittee or the Township money.
- 7. Notify a Forest Officer when you are running low on permit books so more can be sent to you. Keep used books until collected by the Forest Officer.

- 8. You may write a permit for yourself if you wish to do some burning. Follow all other instructions and have the permit with you when burning.
- 9. If you have any question as to whether to issue a permit or not, feel free to call a Forest Officer for advice or assistance.

Writing a Permit

The following are instructions for completion of a burning permit:

DEPARTMENT OF NATURAL RESOURCES	PERMIT TO BURN
Town of:	(2)
Permittee's Name (3)	Permittee's Address (4)
Description of what is to be burned:	Sub-Division Section Township Range
TERM OF PERMIT (7)	Year) TO: (Hour, Day, Month, Year)
BURNING CAN ONLY BE DONE EACH DAY BE	TWEEN THE HOURS OF (9) and (10)
Signature of Forest Officer or Township Fire Ward	Date (12)
Lagree to use all possible care in keeping this fire u	under control and to assume responsibility for all damage
which may result from burning done under this p the right to revoke this permit at any time. When a	action is taken to revoke this permit such revocation sha
which may result from burning done under this p	permit. The Department of Natural resources shall have action is taken to revoke this permit such revocation sha

1. **TOWN OF:** enter here the name of the township (or municipality) in which the burning will take place. If the township is unorganized, enter "UNORGANIZED".

- 2. **COUNTY:** enter the name of the county in which the burning will take place.
- 3. **Permittee's Name:** enter the name of the person actually doing the burning.
- 4. **Permittee's Address:** enter the address of this person.
- 5. **Description of what is to be burned:** enter here a physical description of the material to be burned. Be specific. For example: "brush piles" or "windrows" or "hay meadow-running fire". Refer to the list of material that may not be burned elsewhere in this manual.
- 6. **Sub-Division....Range:** enter the legal description of where the burning will take place to the best of your ability. Sometimes the "forty" will not be known, but the section, township and range must be entered. For example: "NWSW-25-42-27". Refer to a plat book if necessary.
- 7. **FROM:** (Hour, Day, Month, Year): enter here the exact time at which burning will first be allowed. For example: 6PM, 13 April 1986.
- 8. **TO:** (Hour, Day, Month, Year): enter the expiration time of the permit. At this time, all fire must be out and no more will be allowed under this permit. Refer to the latest notification card for terms and duration allowed.
- 9. **HOURS OF:** enter here the time of day that burning may begin. For example: 6PM.
- 10. **and:** enter here the time of day that the fire must be out. For example: 6AM. For both 9. and 10., refer to the latest notification card. If there are no daily time restrictions on the burning, enter "ALL DAY" in the blanks.

- 11. **Signature of Forest Officer or Township Fire Warden:** the person actually writing the permit signs here. This person must be commissioned as a Fire Warden to issue permits.
- 12. **Date:** enter the date the permit was issued.
- 13. **Signature of the Permittee:** the person who will actually be doing the burning must sign here. Make sure the permittee reads and understands the terms of the permit, particularly the starting and ending times, and that he or she is responsible for the fire at all times!

Although there is no blank for it, you may find it helpful to write the permittee's telephone number somewhere on the permit in the event you may have to cancel the permit or check on the burning for any reason.

The following is a routine permit for a running fire issued in accordance with the latest notification card:

NA-01974-02	•			
DEPARTMENT OF MESOTA NATURAL RESOURCES	PERMIT TO BURN			
Town of:	County			
Shamrock	Aitkin			
Permittee's Name	Permittee's Address			
Joe Wilson	R4.3 McGreger Mn. Sub-Division Section Township Range			
Description of what is to be burned:	Sub-Division Section Township Range			
Leaves In	lian Portage 20 49 23			
Leaves FROM: (Hour, Day, Month, Yea	r) TO: (Hour, Day, Month, Year)			
TERM OF PERMIT 2 am 4 May	85 6am 7 May 85			
BURNING CAN ONLY BE DONE EACH DAY BETWEEN THE HOURS OF 2 pm and 6 a m You are hereby granted permission to burn the above described materials on the location as specified during the times and dates as noted.				
Signature of For Officer or Township Fire Warden	Date .			
Jany B. Bime	e 4/May/85			
I agree to use all possible care in keeping this fire under control and to assume responsibility for all damages which may result from burning done under this permit. The Department of Natural Resources shall have the right to revoke this permit at any time. When action is taken to revoke this permit such revocation shall take effect immediately.				
Signature of Committee Wilson	Date 4/May/85			
(THIS PERMIT MUST BE YOUR POSSESSION WHEN BURNING				

The following is a "special" permit allowing the permittee to start earlier than would be allowed under a regular permit. PERMISSION MUST BE OBTAINED BEFORE ISSUING A SPECIAL PERMIT!

NA-01974-02				
DEPARTMENT OF MATURAL RESOURCES	PERMIT TO BURN			
Town of:	County			
Shamrock	Aitkin			
Permittee's Name	Permittee's Address			
Description of what is to be burned:	Sub-Division Section I Township Range			
Hay Field	NWSW 20 49 23			
FROM: (Hour, Day, Month, Yea	المفيا أفالما			
w pm 1 mag	100 0000			
BURNING CAN ONLY BE DONE EACH DAY BETWEEN THE HOURS OF CAM and CAM				
You are hereby granted permission to burn the above the times and dates as noted.	described materials on the location as specified during			
Signature of Forest Officer or Township Fire Warden	Date			
Ham B Bung	e 4/May/85			
I agree to use all possible care in keeping this fire control and to assume responsibility for all damages which may result from burning done under this permit. The Department of Natural Resources shall have the right to revoke this permit at any time. When action is taken to revoke this permit such revocation shall take effect immediately.				
Signature of Perintee Wilson	Date 4/May/85			
THE PERMIT MUST BE YOUR POSSESSION WHEN BURNING				

When Burning Permits are Discontinued

The Area Forest Supervisor may direct that burning permits not be issued when the following conditions prevail:

- 1. When forest fire hazard reaches a point where control is doubtful.
- 2. When the forest fire daily fire condition status reaches warning stage. The four stages are:

Clear Precaution Watch Warning 3. Whenever the safety and welfare of the public becomes endangered.

Burning Ban

Under extremely dry conditions, the Commissioner of Natural Resources may declare a burning ban for certain areas. When this occurs, no burning is allowed under ANY CIRCUMSTANCES. All existing permits are cancelled and no new permits may be issued. Burning in incinerators, recreational fires, and even smoking outdoors may be prohibited.

When conditions are getting dry, it may be wise to write the permittee's telephone number on your copy of the permit in case you must notify him or her that the permit is cancelled.

Reporting Fires

Reporting of all unauthorized fires to the Minnesota Division of Forestry should be done immediately. Reporting fires should be considered one of the most important duties of Fire Wardens and of all citizens. An early report of a fire enables quicker and more effective action and allows for a more efficient distribution of firefighters and equipment. This is especially true when more than one fire is burning in a district.

In reporting a fire, the completeness of information given is extremely important to the dispatcher receiving the report. From this information, the dispatcher must dispatch sufficient firefighters and equipment for the job of putting the fire out.

If the fire cannot be reported to a Forest Officer or as otherwise instructed, the Fire Warden should immediately take whatever suppression action is necessary.

Telephone calls reporting fires to Forest Officers may be made collect and will be accepted at the numbers listed in the front of this manual. The following information is important when reporting a fire:

- Location of the fire by section, township and range. If this is unknown, give distances and directions from known landmarks.
- 2. Approximate size of fire.
- 3. Type of terrain and access to the fire.
- 4. What the fire is burning in now and what will it move into.
- 5. Are any structures or other improvements threatened by the fire.
- 6. Time the fire was discovered and by whom.
- 7. Time work was started, if so.
- 8. Number of people working on the fire.

If suppression efforts are begun prior to notification of a Forest Officer, you are urged to report the fire as soon as possible. If for some reason the fire is put out prior to notification, every effort should be made to report the fire to a Forest Officer before 8:15 a.m.

A complete record of all action taken: time, equipment, and expense, should be kept by the Fire Warden. Refer to the "Timekeeping" Section of this manual.

Telephone calls covering the above items may be made collect to your District or Area Office.

Fire Suppression

Fighting wildfires can be hazardous, grueling work. There are dangers of burns, smoke inhalation or other physical injury. If you are physically fit and willing to fight fires,

contact your Forest Officer and ask for training, and a copy of the **Manual for Forest Fire Fighters**.

Under present State law, no person under the age of 18 may be permitted to work on any firefighting project.

the area where water or retardant drops are being made. Normally, you will be notified that drops are being made and cashing to stay clear, flowever, this is not always decreed.

Firefighting is dangerous work. The safety of the firefighter should be considered above everything else. Safeguarding firefighters is a serious responsibility of the person in charge of the fire and of every person on the fire line. Well a work which also be a summer to the serious responsibility of the person in charge of the fire and of every person on the fire line.

Illness or injury, no matter how slight, should be immediately reported to the nearest Forest Officer.

helicopter in an emergency situation, stand in trant of the lichicopter and the pilot will tell you when to

The following are the minimum safety practices that should be followed at all times:

- 1. Use tools only for the purpose of which they were intended.
- usefu.2h. Domot use defective tools
- and reals of the goal live reductile and enably injure other of a long point place tools where they may injure other of reductive fighters, and may be live round upon the long basis.
- s robus semilence, reversely reals at enthemosine are available for sharp-edged tools, use seed werthem associated were conveniently if (some good)
- de de la company de la company
- hims and end to aload on ion of about a form the bound throw tools or equipment, and do not permit any other firefighter to do so.

- 7. Have lights available when working after dark.
- 8. On many fires, aircraft are used routinely. These may be either helicopters or air tankers. When either of these aircraft are used on a fire, you must stay clear of the area where water or retardant drops are being made. Normally, you will be notified that drops are being made and cautioned to stay clear. However, this is not always the case.

HELICOPTERS

You may have a helicopter land close to where you are working. If so, **do not** approach the helicopter. If the helicopter crew wants to talk to you, they will come to you.

Should it be necessary that you approach the helicopter in an emergency situation, stand in front of the helicopter and the pilot will tell you when to approach. **NEVER** approach a helicopter from the rear of the ship.

AIRTANKERS

Under normal conditions, you will be advised when and where the airtanker will drop and to clear the line. (Normally all airtankers are accompanied by a lead plane which will fly in front of the airtanker to see if the line is clear. However, sometimes under a dense tree canopy, it is impossible to see the entire drop zone.) If you have no crew boss or the crew boss is not in contact with the tanker, the tanker will make a dry run over the exact place that the drop will be made. At that time, clear the line immediately—move away from the line at least 200 feet. After the drop is made, do not go back on the line until instructed to do so; the tanker may make another drop on the same place.

- 9. If caught in front of a fire, try to get into the burned area. If this cannot be done, travel downhill away from the fire. Keep close to the ground to get clear air.
- 10. Wear heavy leather boots and gloves. If possible, have a jacket with you. Wear a safety helmet at all times.

Injuries

When injuries or illness occur, there are some basic first aid rules that apply. However, do not attempt anything you are not trained to do. Minor cuts, etc., may be treated from a home first aid kit. Notify a Forest Officer as soon as possible of any injury, no matter how small.

Note the following general rules:

- 1. In case of serious illness or injury, call for an ambulance.
- 2. Keep the injured person lying down and do not move him or her unless in danger.
- 3. Try to stop bleeding with direct pressure on the wound.
- 4. Restore breathing if it has stopped.
- 5. Keep the person warm (treat for shock).

Patrolling Fires

Even if you don't fight fires, you may be asked to patrol a fire. For example, the Forest Officer may have fought a fire in your township one day, then asked you to check it the next day to make sure it's out. Walk all around the edge of the fire first, looking for any signs of smoke. Feel with your hand (carefully) for hot spots. If you have a pumptank, squirt some

water on suspected hot spots. If you get some steam, then there's still fire. Check carefully to be sure the fire is out and will not flare-up again.

Addison if covery Timekeeping wood and W

If you do fight a fire, it's very important to report to the Forest Officer by 8:15 the following morning. He will need to know:

- 1.6 Legal description of where the fire started.
- era nov scricture (greets looked tovokal) ylega ted) eater a ro-2: Size of the burned area in acres (4 tob or boross) bor
- to addresse at none as restiffed as nells yellow and his rent encode.

 3. When the fire started and when it was out.
 - 4. Any damage done by the fire. https://distriction.com
- 5. The cause and person responsible.

In addition, if anyone (including you) wishes to be paid for fighting the fire, he will need the name, address, social security number and hours worked. If you hired equipment (tractor, etc.) the Forest Officer will need all the above information for the equipment owner as well as rate-per-hour for the equipment. NO ONE CAN BE PAID WITHOUT THEIR SOCIAL SECURITY NUMBER!

Cost Collections and Investigations

计控制系统 化水油基氯苯酚甘苦抗鞣

When it is possible to identify a person responsible for a fire, the Forest Officer may collect the costs of suppression or arrest the person. If you have any information about the cause of a fire, please notify a Forest Officer.

In all cases, it is desirable for the Forest Officer to determine the cause of a fire. Often, that must include finding the specific item (match, etc.) which started the fire. All too often

that evidence is destroyed (inadvertently) by the people fighting the fire. A fire truck driving through the origin will usually eliminate any chance of finding the cause. Even water sprayed on the origin may obliterate it. If you are among the first to arrive on a fire, try to preserve the origin by keeping people and vehicles out of the general area. Do not attempt to find the cause unless instructed to do so.

Equipment

The introduction of various types of specially designed equipment now in use by the Division of Forestry has greatly advanced the effectiveness of fire control work. Although a large amount of equipment is available for immediate use by the Division of Forestry, this still is far from enough to cope with extended and intensive fire seasons. Consequently, a large amount of private equipment must be hired for short periods during fire seasons.

All firefighting equipment is expensive to buy and maintain. Improper use of equipment may result in excessive loss, breakage and wear, with a consequent high maintenance cost.

Some loss and breakage of equipment is to be expected on most fires. However, good judgment and care in the use of both state and private equipment can hold these items to a minimum.

Pumptanks

Pumptanks have been proven to be one of the most effective tools for fire suppression. Pumptanks may be issued to Fire Wardens to have on standby for firefighting. Pumptanks may be loaned out to permittees to help control their fires. You are responsible for the pumptank, so make sure it is returned to you as soon as possible after burning. Make sure the pumptank is only used with clean water. It should never be used with ANY CHEMICALS. Chemicals will react with the metal

and ruin the pumptank. Also, make sure it is not allowed to freeze. During freezing weather, keep the pumptank in a warm place or drain the tank and pump the pump until dry.

Forestry personnel will check the pumptanks annually and do any repairs that are needed. Some pump spray nozzles are adjustable but be aware that they will fall off if screwed all the way out. The nozzle is easily plugged by small particles but may be cleaned out by removing the nozzle. The shaft of the pump should be lubricated with petroleum jelly (Vaseline) if the pump is not operating freely. Do not lubricate with grease or oil as this will cause the rubber seals to deteriorate. If clean water is used in the pumptank, little additional problems should be noticed.

Heavy Equipment

Hiring of heavy equipment may be done. If possible, seek special authorization from a Forest Officer. Heavy equipment for firefighting use falls generally into three classes.

- 1. FARM TYPE TRACTORS AND PLOWS. These units may be successfully used when soil conditions are favorable. Good judgment must be used in selecting the location to be worked.
- 2. CRAWLER TRACTORS USING **PLOWS** BULLDOZERS. Equipment of this type may be used in many types of terrain. Large dozers can construct a satisfactory fire line through heavy brush and timber under very difficult conditions. This type of equipment does have limitations though, and should not be worked beyond its capacity. Take advantage of all natural aids and, if possible, have a line marked ahead of the dozer in heavy going. Secure an experienced operator. This will greatly speed up line construction and produce better results. Tractors, bulldozers and other heavy equipment should not be loaded or unloaded on highway shoulders when other space is available.

3. MOTOR PATROL GRADER UNITS. Diesel or gasoline type heavy road patrols may be very useful in brush and more open country. This type of equipment should never be used without an operator experienced in its specific use.

Appendix

Minnesota Forest Fire Laws Minnesota Statutes 88.10, 88.11, 88.15, 88.16, 88.17, 88.18, 88.19, 88.22

Minnesota Leaf Burning Law Minnesota Statutes 116.082

Pollution Control Agency Regulations 7005

Minnesota Forest Laws

88.10 FIGHTING FOREST FIRES, AUTHORITY OF STATE FOREST OFFICERS.

Subdivision 1. Under the direction of the commissioner. forest officers are charged with preventing and extinguishing forest fires in their respective districts and the performance of such other duties as may be required by him. They may arrest without warrant any person found violating any provisions of sections 88.03 to 88.22, take him before a court of competent jurisdiction in the county charging the person so arrested, and the person so charged shall be arraigned and given a hearing on the complaint. The forest officers shall not be liable in civil action for trespass committed in the discharge of their duties. All authorized state forest officers, including rangers, guards, township fire wardens, smoke chasers, fire formen or individuals legally employed as fire fighters, may in the performance of their duties of fire fighting go onto the property of any person, company, or corporation and in so doing may set backfires, dig or plow trenches, cut timber for clearing fire lines, dig water holes, remove fence wires to provide access to the fire or carry on all other customary activities necessary for the fighting of forest, prairie or brush fires without incurring a liability to anyone, except for damages arising out of wilful or gross negligence.

Subd. 2. Any forest officer may serve any warrant for the arrest of any person violating any provision of sections 88.03 to 88.22 and for that purpose all forest officers are hereby vested with the same powers as constables or other similar officers of the courts issuing such warrants.

88.11 FOREST OFFICERS; AID FOR FIGHTING FIRES; REFUSAL; COMMANDEERING PROPERTY.

Subdivision 1. At any time, forest officers, with the approval of the commissioner, may employ suitable persons to prevent and extinguish any fires. Each forest officer so em-

ployed shall be supplied with the necessary equipment. The commissioner, or any forest officer, may summon any male person of the age of 18 years and upward to assist in stopping any fire burning in the district under the care of such state employee and may incur any other necessary and reasonable expense for this purpose, but shall promptly report the matter to his next superior officer or other state employee over him.

Subd. 2. Any able-bodied person so summoned who refuses or neglects or otherwise fails to assist in extinguishing such fire or who fails to make all reasonable efforts to that end, until released by the state employee who summoned him, shall be guilty of a misdemeanor and punished by a fine of not less than \$10 and not more than \$50 and the costs of prosecution, or by imprisonment in the county jail for not less than 10, nor more than 30 days. The forest officer shall have power to commandeer, for the time being, equipment, tools, appliances, or other property in the possession of any person either summoned to assist in extinguishing the fire or in the vicinity thereof, and himself to use, and to require the persons summoned to his assistance to use the commandeered property in the fighting and extinguishing of the fire. The owner of any property so commandeered shall be promptly paid just compensation for the use thereof and all damages done to the commandeered property while in this use by the forest officer from any money available for these expenses under sections 88 03 to 88 21

88.15 CAMP FIRES.

Subdivision 1. EXTINGUISHMENT. Any road overseer or assistant of a road overseer or other local officer having charge of any highway, or any highway patrolman, who finds that any person has left a camp fire burning in his district shall extinguish the same and take prompt measures to prosecute the person who so left the fire.

Subd. 2. NOT TO BE LEFT BURNING. Every person who starts a fire in the vicinity of forest or prairie land, when the ground is not covered with snow, shall exercise every reason-

able precaution to prevent the fire from spreading and shall, before lighting the same, clear the ground of all branches, brushwood, dry leaves, and other combustible material within a radius of five feet from the fire, and keep the fire under his immediate personal supervision and control at all times, and carefully extinguish the fire before quitting the place.

88.16 STARTING FIRES; CAMPFIRES; INCINERATORS; BURNING BAN.

Subdivision 1. Except as provided in subdivision 2, it shall be unlawful when the ground is not snow-covered, in any place where there are standing or growing native coniferous trees, or in areas of ground from which natural coniferous trees have been cut, or where there are slashings of such trees, or native brush, timber, slashings thereof, or excavated stumps, or where there is peat or peat roots excavated or growing, to start or have any open fire without the written permission of the commissioner or other authorized forest officer.

Subd. 2. No permit is required for the following open fires:

- (a) A cooking or warming fire contained in a fireplace, fire-ring, charcoal grill, portable gas or liquid fueled camp stove or other similar container or device designed for the purpose of cooking or heating, or if the area within a radius of five feet of the fire is reasonably clear of all combustible material.
- (b) The burning of grass, leaves, rubbish, garbage, branches, and similar combustible material in an approved incinerator. An approved incinerator shall be constructed of fire resistant material, have a capacity of at least three bushels, be maintained with a minimum burning capacity of at least two bushels, and have a cover which is closed when in use and have openings in the top or sides of one inch maximum diameter. No combustible material shall be nearer than three feet to the burner or incinerator when in use.

Subd. 3. The occupant of any premises upon which any unauthorized fire is burning in the vicinity of forest lands, whether the fire was started by him or otherwise, shall promptly report the fire to the commissioner, or to the nearest forest officer or fire warden. Failure to make this report shall be deemed a violation of sections 88.03 to 88.22 and the occupant of the premises shall be deemed prima facie guilty of negligence if the unreported fire spreads from the premises to the damage, loss, or injury of the state or any person.

88.17 PERMISSION TO START FIRES; PROSECUTION FOR UNLAWFULLY STARTING FIRES.

Subdivision 1. Permission to set fire to any grass, stubble, peat, brush, raking of leaves, rubbish, garbage, branches, slashings or woods, for the purpose of cleanup, clearing and improving land or preventing other fire shall be given whenever the same may be safely burned, upon such reasonable conditions and restrictions as the commissioner may prescribe, to prevent same from spreading and getting beyond control. This permission shall be in the form of a written permit signed by a regular forest officer or some other suitable person to be designated by him, as town fire warden; these permits to be on forms furnished by the commissioner. Any person setting any fire or burning anything under such permit shall keep the permit on his person while so engaged and produce and exhibit the permit to any forest officer when requested to do so.

Subd. 2. In any prosecution under sections 88.03 to 88.22 for unlawfully starting or setting or having or permitting the continuation or spread of any fire or back-fire, proof upon the part of the prosecution that such fire or back-fire originated upon, or was permitted to burn upon, or that it spread from lands or premises occupied by the person charged with the offense, and that this person had knowledge of the fire and made no effort to put it out, shall be prima facie evidence that he is guilty. The burden of proof as to any matter in refutation of this prima facie guilt, or in extenuation or excuse, shall be and rest upon the person so appearing prima facie to be guilty.

88.18 FIRE WARDENS.

The commissioner may appoint supervisors, constables, and clerks of towns, mayors of cities, and presidents or presiding officers of city councils or other responsible persons to be fire wardens for their respective districts; and they shall do all things reasonably necessary to protect the property of such municipalities from fire and to extinguish the same.

88.19 NEGLECT OR REFUSAL TO PERFORM DUTY.

Every forestry employee of the state who shall unjustifiably refuse or neglect to perform his duty; every person who shall kindle a fire on or near forest, brush, or prairie land and leave it unquenched, or be a party thereto, or who shall set fire to brush, stumps, dry grass, field stubble, leaves, peat, rubbish, garbage, branches and slashings, or other material, and fail to extinguish the same before it has endangered the property of another; every person who shall negligently or carelessly set on fire, or cause to be set on fire, any woods, prairie, or other combustible material, whether on his own land or not, by means whereof the property of another shall be endangered, or who shall negligently suffer any fire upon his own lands to extend beyond the limits thereof; every person who shall use other than incombustible wads for firearms, or carry a naked torch, firebrand, or exposed light in or near forest land, or who, upon any such land or in the vicinity thereof, or on or along any public or private road, trail path, railroad right-of-way or roadbed, or other public or private way of any kind running over or along or in the vicinity of any such land, shall throw or drop any burning match, ashes of pipe, lighted cigar, or cigarette, or any other burning substance and who fails to extinguish the same immediately; every person who drives upon or over forest lands in a motor vehicle with an open cut-out or without a muffler on the exhaust pipe; and every person who operates a tractor, chainsaw, steam or internal combustion engine in forested areas not equipped to prevent fires, shall be guilty of a misdemeanor; and, on conviction thereof, punished by a fine of not less than \$25 and not exceeding \$100 and costs of prosecution, or by imprisonment in the county jail for not less than ten and not exceeding 90 days.

88.22 FOREST FIRE PREVENTION; CLOSING FOREST ROADS AND TRAILS; PROHIBITING OPEN FIRES AND SMOKING; REGULATING PRIVATE AND PUBLIC DUMPING AREAS; PENALTIES.

Subdivision 1. When the commissioner of natural resources shall determine that conditions conducive to forest fire hazards exist in the forest areas of the state and that the presence of persons in the forest areas tends to aggravate forest fire hazards, render forest trails impassable by driving thereon during wet seasons and hampers the effective enforcement of state timber trespass and game laws, he may by written order, close any road or trail leading into any land used for any conservation purposes, to all modes of travel except that considered essential such as residents traveling to and from their homes or in other cases to be determined by the authorized forest officers assigned to guard the area. The commissioner may also, upon such determination, by written order, suspend the issuance of permits for open fires, revoke or suspend the operation of a permit previously issued and, to the extent he deems necessary, prohibit the building of all or some kinds of open fires in all or any part of a forest area regardless of whether a permit is otherwise required; and the commissioner also may, by written order, prohibit smoking except at places of habitation or automobiles or other enclosed vehicles properly equipped with an efficient ash tray.

Subd. 2. The commissioner may close any public or private dumping area, by posting such area as closed to dumping, whenever he deems it necessary for the prevention of forest fires. Thereafter, no person shall deposit refuse of any kind within or adjacent to such closed area, or along the road leading thereto.

The commissioner shall establish such minimum standards governing public and private dumping areas as he deems necessary for the prevention of forest fires.

Subd. 3. Any violations of this section shall constitute a misdemeanor.

Minnesota Leaf Burning Law

Sec. 37. (116.082) (OPEN BURNING OF LEAVES: LOCAL ORDINANCES.)

Subject to sections 88.16, 88.17 and 88.22, but notwithstanding any law or rule to the contrary, a town or home rule charter or statutory city located outside the metropolitan area as defined in section 473.121, subdivision 2, by adoption of an ordinance, may permit the open burning of dried leaves within the boundaries of the town or city. The ordinance shall limit leaf burning to the period between September 15 and December 1 and shall set forth limits and conditions on leaf burning to minimize air pollution and fire danger and any other hazards or nuisance conditions. No open burning of leaves shall take place during an air pollution alert, warning or emergency declared by the agency. Any town or city adopting an ordinance pursuant to this section shall submit a copy of the ordinance to the agency and the department of natural resources.

POLLUTION CONTROL AGENCY REGULATIONS

OPEN BURNING RESTRICTIONS AND PERMITTING REQUIREMENTS

7005.0700 DEFINITIONS.

- Subpart 1. Scope. As used in parts 7005.0700 to 7005.0820 the following words shall have the meanings defined herein.
- Subp. 2. Approved waste burner. "Approved waste burner" means an incinerator or other burner constructed of fire resistant material having a capacity of not less than three bushels, a cover which is closed when in use, and maximum openings in the top or sides no greater than one inch in diameter.
- Subp. 3. Building material. "Building material" means lumber, wood shakes, and other wood products but shall not include composite shingles, tar paper, insulation, wall board, wiring, or other similar smoke producing materials.
- Subp. 4. Diseased shade tree. "Diseased shade tree" means any tree infected by Dutch elm disease or oak wilt disease or any tree constituting a hazard to a disease control program established by the Department of Agriculture pursuant to Minnesota Statutes, section 18.023.
- Subp. 5. Disposal facility. "Disposal facility" means a facility or site permitted by the Minnesota Pollution Control Agency for the intermediate or final disposal of solid waste.
- Subp. 6. Garbage. "Garbage" means discarded material resulting from the handling, processing, storage, preparation, service, and consumption of food.
- Subp. 7. Metropolitan area. "Metropolitan area" means the area included within the counties of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.

- Subp. 8. Open burning. "Open burning" means the burning of any matter whereby the resultant combustion products are emitted directly to the atmosphere without passing through an adequate stack, duct, or chimney.
- Subp. 9. Refuse collection service. "Refuse collection service" means a public or private operation engaged in solid waste collection and transportation.
- Subp. 10. Rubbish. "Rubbish" means nonputrescible solid waste, such as paper, cardboard, yard clippings, and other natural matter not including garbage.
- Subp. 11. Wetland. "Wetland" means natural marsh where water stands near, at, or above the soil surface during a significant portion of most years.

7005.0710 OPEN BURNING RESTRICTION.

No person shall cause, allow, or permit open burning.

MS s 116.05 subd 4

7005.0720 EXEMPTIONS.

- Subpart 1. Unincorporated areas. In unincorporated areas where no refuse collection service is available, the open burning of rubbish originating from single residential premises may be conducted in approved waste burners.
- Subp. 2. Cities without refuse collection service. In any city where no refuse collection service is available, the local unit of government may apply to the director for permission to allow the open burning of rubbish originating from single residential premises in approved waste burners.
- Subp. 3. Availability of refuse collection service. Refuse collection service shall be deemed available as delineated in

the county solid waste management plan, as adopted by the county and approved by the agency.

MS s 116.07 subd 4

7005.0730 PROHIBITION OF SALVAGE OPERATIONS BY OPEN BURNING.

Subpart 1. Restriction. No person shall conduct, cause, or permit salvage operations by open burning.

Subp. 2. Permit required. No person shall possess, transport, or process motor vehicles or scrap metals which have been reduced by open burning or incineration in a device or equipment which has not received an operating permit from this agency.

MS s 116.07 subd 4

7005.0740 OPEN BURNING BY PERMIT.

Open burning may be conducted if an open burning permit is obtained pursuant to parts 7005.0700 to 7005.0820 and the open burning is conducted in accordance with the requirements of parts 7005.0700 to 7005.0820 and the conditions of the permit.

MS s 116.07 subd 4

7005.0750 PERMIT APPLICATIONS.

Subpart 1. Application. Application for open burning permits may be made in cases where fires are proposed to be set for the following purposes:

A. bona fide instruction and training of fire fighting personnel and for the testing of fire extinguishing equipment;

- B. elimination of fire or health hazards which cannot be abated by any other practicable means;
- C. activities in accordance with accepted forest or game management;
- D. ground thawing for utility repair and construction;
- E. the disposal of trees, brush, grass, and other vegetative matter in the development of land and right-of-way maintenance;
- F. the disposal of diseased shade trees;
- G. the disposal of trees and brush in areas outside the metropolitan area;
- H. activities in accordance with accepted agricultural practices;
- I. the disposal of building material generated by construction; and
- J. the disposal of building material generated by the demolition of noncommercial or noninstitutional structures.

Subpart 2. Restrictions. A burning permit shall be issued on a prescribed form to the applicant if the burning is for one of the purposes set forth in subpart 1 and the applicant agrees that all burning shall be conducted under the following circumstances:

- A. The prevailing wind at the time of the burning shall be away from nearby residences.
- B. The burning shall be conducted as far away as practical from any highway or public road and controlled so that a traffic hazard is not created.
- C. The burning may not be conducted during the duration of an air pollution alert, warning, or emergency.

- D. The recipient of the permit or his authorized representative shall be present for the duration of any fire authorized by the permit.
- E. Prior notice shall be given to the local Department of Natural Resources Forest Officer, local fire marshall, or local fire chief of the time and location of any fire authorized by the permit.
- F. Open burning for ground thawing shall be conducted in accordance with the following additional restrictions:
 - (1) Fuels and starting materials shall be of a kind which do not generate appreciable smoke.
 - (2) Coke used for ground thawing within 500 feet of dwellings or occupied buildings shall contain less than one percent sulfur.
 - (3) Ambient air quality standards for sulfur dioxide and carbon monoxide shall not be exceeded at occupied residences other than those located on the property on which the burning is being conducted.
 - (4) Propane gas thawing torches or other devices causing minimal pollution shall be used when practicable.
- G. Open burning of materials pursuant to subpart 1, items E to J shall be conducted in accordance with the following additional restrictions:
 - (1) The location of the burning shall not be within 600 feet of an occupied residence other than those located on the property on which the burning is conducted.
 - (2) Oils, rubber, and other similar smoke producing materials shall not be burned or used as starting materials.

- (3) The burning shall not be conducted within one mile of any airport or landing strip, unless approved by the director.
- H. Open burning of materials pursuant to subpart 1, item I shall also be conducted under controlled burning methods approved by the director.
- I. The burning is conducted under such other reasonable conditions as the permit issuing authority may impose.

7005.0760 PERMIT ISSUERS.

In addition to the agency, the following persons are authorized to accept applications and issue open burning permits:

- A. a Department of Natural Resources Forest Officer for locations within his jurisdiction;
- B. a local Department of Natural Resources Fire Warden for locations within his jurisdiction;
- C. upon approval of the agency, a local pollution control agency for locations within its jurisdiction;
- a person(s) designated by the county board of commissioners and approved by the director for locations within the county but outside the corporate limits of cities within the county;
- E. upon the approval of the director, either a fire chief or a person designated by a township or city for locations within the jurisdiction of said governmental unit; and
- F. a regional director of the agency or an employee of the agency authorized by the director, who may in

their discretion refer the applicant to a local permit issuing authority.

MS s 116.07 subd 4

7005.0770 PERMIT DENIAL.

Any permit application submitted pursuant to parts 7005.0700 to 7005.0820 shall be denied if:

- A. a reasonable, practical alternative method of disposal of the material is available; or
- B. a nuisance condition would result from the burning.

MS s 116.07 subd 4

7005.0780 PERMIT REVOCATION.

Any permit is subject to revocation at the discretion of the director, a Department of Natural Resources Forest Officer, the local fire marshall or fire chief, or the permit issuer, if:

- A. a reasonable practical method of disposal of the material is found;
- B. a fire hazard exists or develops during the course of the burning; or
- C. any of the conditions of the permit are violated.

MS s 116.07 subd 4

7005.0790 LIABILITY.

Exemption to conduct open burning or the granting of an open burning permit under any provisions of parts 7005.0700 to 7005.0820 does not excuse a person from the consequences, damages, or injuries which may result therefrom.

7005.0800 CONFLICTING LAWS.

Nothing in parts 7005.0700 to 7005.0820 shall be construed to allow open burning in those areas in which open burning is prohibited by other laws, regulations, or ordinances.

MS s 116.07 subd 4

7005.0810 RECREATIONAL FIRES.

Fires set for recreational, ceremonial, food preparation, or social purposes are permitted provided only wood, coal or charcoal is burned.

MS s 116.07 subd 4

7005.0820 DISEASED SHADE TREE OPEN BURNING SITES.

Subpart 1. Open burning permitted. Open burning of diseased shade trees shall be permitted provided no reasonable alternate method of disposal exists as determined by the agency, a permit is obtained pursuant to parts 7005.0700 to 7005.0820, and the open burning is conducted in accordance with the requirements of parts 7005.0700 to 7005.0820 and the conditions of the permit.

- Subp. 2. Site location. The site shall be located in accordance with the following conditions or as approved by the director of air quality:
 - A. not less than 1,000 feet from an occupied building;
 - B. not less than 1,000 feet from a public roadway;
 - C. not less than one mile from an airport or landing strip;

- D. not less than 300 feet from a stream; and
- E. not within wetland.
- Subp. 3. Site preparation. The site shall be prepared in accordance with the following:
 - A. Access to the site shall be controlled by a gate which shall be locked when an attendant is not on duty.
 - B. Approach roads to the disposal site and access roads on the site shall be maintained so that they shall be passable at all specified times.
 - C. A permanent sign identifying the operation indicating the hours and days the site is open for use, rates, the penalty for nonconforming dumping, and other pertinent information shall be posted at the site entrance.
 - D. Surface water drainage shall be diverted around and away from the operating area and ash storage areas.
- Subp. 4. Site operation. The site shall be operated in accordance with the following conditions:
 - A. Only diseased shade trees and/or tree trimmings shall be disposed of on the site.
 - B. Qualified personnel for general direction and operation of the site shall be on duty at all times while the site is open for use and for the duration of any fire on the site.
 - C. Burning shall be conducted only when weather conditions are such that a nuisance, health, or safety hazard will not be created.
 - D. Prior notice shall be given to the local fire authority of the time and duration of each fire.

- E. Adequate dust control shall be provided on the site and on the roads leading to the site.
- F. Ash residue shall be collected on a periodic basis and disposed of in an agency-permitted sanitary landfill.
- Subp. 5. Site termination. The site shall be terminated in accordance with the following:
 - A. All materials extraneous to the site shall be removed and disposed of in an appropriate manner.
 - B. The site shall be returned to a state equal to its surroundings.

Forest Fire Manual

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