

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WASHINGTON, D. C.

O
Fire

May 25, 1935

Regional Foresters,

ALL REGIONS.

Dear Sir:

On April 20, a majority of the Regional Foresters voted for and the Forester approved the following suppression policy:

"FIRE SUPPRESSION POLICY"

"The approved protection policy on the National Forests calls for fast, energetic and thorough suppression of all fires in all locations, during possibly dangerous fire weather.

"When immediate control is not thus attained, the policy then calls for prompt calculating of the problems of the existing situation and probabilities of spread, and organizing to control every such fire within the first work period. Failing in this effort the attack each succeeding day will be planned and executed with the aim, without reservation, of obtaining control before 10 o'clock of the next morning."

My letter of May 7 has already announced and has partially explained the new policy. First of all, the policy gives new emphasis to the established policy of keeping fires small. The very best handled fire is the one which is kept from occurring at all. Next best is the fire which guards and other personnel handle with such speed and trained competence that the fire is quickly put out, and immediate control is secured of "all fires in all locations during possibly dangerous fire weather."

Beyond that point the policy is new and embodies important changes. It includes all National Forests in its scope. It emphasizes rapid suppression of all fires. In these respects it treats all areas on an equal basis. It eliminates our current appraisals of tangible forest values, of themselves, as the basis for differing intent and driving force in fire control. It simplifies both the making of key decisions on the ground, and the inspection and review of suppression and presuppression action.

It does not say nor imply that needless over-organization in either suppression or presuppression should be tolerated by Forest Officers.

We have just finished one standard half-decade fire period and are just beginning a new half-decade. The adoption of this policy gives us a chance for experimentation on a continental scale. In some Regions, it represents a departure from traditions and habits of the past and as we make it a clean-cut and uniformly applied departure we will have a fine opportunity to make statistical and other comparisons between the half-decade just closed and the half-decade just starting. At the end of each year of the next half-decade we may, by needed allowance for differences in area and in climatic and other conditions, make illuminating comparisons to determine the effect of the new policy on the average annual tangible damage of \$1,268,014 for all National Forests and the average annual loss of area of .21% of the last 5 years.

To apply the policy we must all get a clear understanding of just what it means and the habits needed to effectuate it.

It is obvious that the objective sought projects the policy into pre-suppression, since only by strengthening the pre-suppression forces on some areas can the action contemplated be realized. This may call for increasing the standard of detection; plugging holes with additional firemen where firemen or smoke chaser travel time is known to be longer than limits of safety; advanced placement of trained fire suppression crews to be held at carefully selected travel time limit centers, after full use of CCC, and PWA forces has been made. These additional pre-suppression sources likely can be provided in the main only by drawing upon F. F. To the extent that carefully thought out plans make this necessary, Regional Foresters are authorized to draw upon funds from that source to enable the building up of the pre-suppression force to required strength.

Regional Foresters are of course expected to maintain close control of such expenditures, and to avoid over-organization.

The policy likewise dictates reconsideration of transportation plans for areas previously treated as "Low value." It will without doubt increase the pressure for roads in "primitive areas," but established Service policy should continue to govern on such areas. It reemphasizes need for the determination of the economy of fire guards or of roads.

Likewise, in fire suppression will be found new application of old principles. In the following paragraphs, Operation lists and comments on a few of the many such principles and techniques that may well be given renewed and greater consideration at this time.

Calculation of Probabilities

One of the important things to understand in applying the policy is its dependence on the techniques of calculating the probabilities. This process constitutes one of the high arts of fire suppression.

No comprehensive statement of this technique is appropriate here but attention must be called to three indispensable steps without which "calculation of the probabilities" cannot be said to exist in the history of a fire. These steps are as follows:

1. A judgment determination by the best qualified available man as to the number of chains which there will be in the perimeter of the fire as it will be at the end of the work period in question. (For his own protection the man making this judgment determination would do well to record his conclusion when he makes it. It should be entered in his diary or in some other record which will be available when the history of the fire is reviewed.)

2. A judgment determination by the best qualified available men as to the average number of chains of held line which can be secured per man (with due regard for machinery to be used) during the time between arrival of the crew and the end of the work period in question. (The man responsible should write this down also for his own protection).

3. The third step is simply to divide the number of chains in the perimeter of the fire as it is expected to be at the end of the work period, by the chains or fraction of a chain of production to be expected per man in the interval between arrival and the end of the work period in question. The quotient is the size of the organization required to comply with the demands of the Forester's policy.

Thus when a responsible officer is planning the organization required for a given fire, if there are three hundred chains to be worked before the end of the period and he can get one chain of held line per man by that time, a three hundred man organization is required.

There is nothing new about this technique for calculating the probabilities. It has been known for twenty years and used more or less. No other method is known which will replace it in complying with the Forester's policy and unless it is used the man responsible cannot successfully assert that his management of a fire job complies with the approved suppression policy of the Forest Service.

Important Points To Be Noted in Connection with Calculation of Probabilities

There are two particular things to be noted in connection with the use of this technique - as follows:

1. Only by accident can a man, even a veteran fire executive, calculate the probabilities so accurately as to complete the corralling of a fire precisely at the end of the period in question. If the man responsible over estimates and therefore corralls his fire before the end of the period he will not be subject to criticism, unless his over estimate is unjustifiably large. If on the other hand he under estimates,

and as a result corralls his fire after the end of the period in question he is subject to criticism.

2. The technique for calculating the probabilities cannot be applied as required by the Forester's policy without some preliminary work. Thus a fire might occur next summer in some well populated country and burn so rapidly in its first run that proper calculating of the probabilities would call for mobilization of eight hundred men during an afternoon and night. There might be thousands of men with competent overhead who physically could be mobilized but because no advance arrangements had been made, only four hundred men might be delivered on the fire during the first work period. The man responsible for such a failure to comply with the Forester's policy cannot plead inability to mobilize the required number of men with the requisite speed if he has been prevented from doing so only by failure to make appropriate preliminary organization arrangements. The minimum requirements for preliminary organization and other arrangements include at least the following:

A. Before the season begins, determine the largest fire fighting organization likely to be required by the worst probable situation during the coming season in the territory in question.

B. Up to the limit of physical possibilities, make advance arrangements so that this maximum organization with its required overhead can be assembled promptly if needed.

If the maximum number of men which may possibly be needed in a ranger district or forest is one thousand but there are only five hundred men possibly available without going to far-distant labor centers then the man responsible in the event of a fire has satisfied the first requirements of the policy if he mobilizes immediately five hundred men even when 1000 are needed.

C. In addition to determination of the maximum number of men who may possibly be required and the maximum number immediately available for the first work period in any fire unit, there must be determined the total possible organization required for the second, third and fourth work periods. This must be done against the possibility that unexpected weather conditions will frustrate properly determined judgments as to size of organization needed for the first, second and third periods successively. This aspect of the matter may require consideration of the physical possibilities of bringing men from remote labor centers in the event of failure to get the fire during the first, second or third work periods.

We know now that this policy is in effect. There is time to work out these standards before the critical part of the fire season begins, at least in the western regions. Unless the standards are developed in advance of the season, a fire executive will be in a difficult position if he fails to get his fire for lack of organization strength which physically could have been brought to the job if proper advance

arrangements had been made.

Three Typical Cases

Our understanding of the whole policy, in so far as it applies to suppression only, may be increased by considering three typical situations as follows:

1. Assume a fire which has been corralled four hours after the end of the first work period. The burned area has not increased materially in size after the end of the work period but corraling was completed four hours late.

An inspector-analyst when reviewing the fire in the light of the new policy is bound to inquire "what went wrong?"

Two possible answers by the man responsible may be considered as follows:

A. "I could not find the fire until after the end of the first period because of a smoke blanket (or fog or lack of any smoke column from the fire itself when men reached its reported location).

This would be a valid and acceptable reason for failing to get the fire by the end of the first work period provided the search for the fire was competently handled.

B. Or the explanation might be - "I didn't quite get it by 10 AM but I did get it by 2 PM and there was nothing lost."

This is not a valid excuse if it was physically possible to have gotten a larger organization on the job. The fire that was not corralled until 2 PM might have turned out to be the occasional fire which gets away to a big run because of failure to corral before 10 AM. The man responsible is subject to criticism. There was an error of judgment in determining the length of perimeter to be worked, or in determining the chains of line to be expected per man by the end of the period, or there was failure to organize as required by the Forester's policy.

2. Assume a fire which made a big unmanageable first run and reached 12,000 acres during the first afternoon. Say the perimeter exclusive of spot fires was estimated to be two thousand chains by 10 AM the following morning. The fire was not corralled during the first period. The inspector in his review is bound to ask "why didn't you get it during the first period?"

The man responsible replies that "it was physically impossible to get that fire by the end of the first period. To work the two thousand chains of edge would have required two thousand men properly overheaded,

for a full ten-hour day. Four thousand would have been required to do the job in the time available between arrival and the end of the first period. It would have been physically impossible to move so many men or organize or equip or feed them even if they could have been moved in."

This is a valid excuse provided the standards specified in 2A, B and C under "Important Points to be Noted in Connection with Calculation of Probabilities", have been complied with. If the standards had not previously been determined or if they were not lived up to, the man responsible is vulnerable to criticism for his management of the fire.

3. This typical case is cited with Regions 1 and 4 particularly in mind, although such cases can and do occur in many other places.

Assume that at 2 PM on September 20 a fire got away from a ten-man guard and improvement crew - all the men there were available in the country. The fire made a fast first run. Its unworked perimeter as of 10 o'clock the following morning, September 21, was estimated to be three hundred and twenty chains. The fire was in back country and the nearest supply of additional labor was 20 miles away by trail plus seventy miles by truck. It was physically possible to put men on the fire by 5 AM September 21. Not more than one chain of held line per man could be expected between 5 AM and 10 AM September 21. Three hundred and twenty men therefore should have been moved in to satisfy the requirements of the Forester's policy. It was physically possible to move them in with equipment, overhead and grub for a short fight.

But instead of dispatching three hundred and twenty men, only one hundred were dispatched. They got the fire September 24, during the fourth work period, before any second run took place and at a perimeter of 700 chains.

This fire was not handled as required by the Forester's policy. The Regional Forester as well as the man immediately responsible will under such circumstances be subject to criticism for failure to organize as required by the approved policy.

Fire Management Hitherto Acceptable now Subject to Criticism

The new policy means that many things which have hitherto been acceptable in the management of fire jobs will hereafter be in violation of the approved policy and subject to criticism. In our discussion of the subject in the meeting I referred to various fires where previous executive action has been regarded as more or less acceptable which in future would be distinctly open to criticism.

Final Points to be Noted Particularly

1. You have been put on notice as to how the new policy will be applied in inspection from the Washington office during the coming

season. It is up to you to inform your men fully.

2. During the last two seasons strong emphasis has been placed on the necessity of using CCC or NIRA men in fire fighting whenever they are available. This policy should be continued. If under rare circumstances the man making necessary decisions before the fire is organized is in his best judgment confronted by the alternatives of (a) probable failure to corral the fire on time because of the use of inexperienced CCC or emergency relief men or (b) the employment of experienced men not in CCC or emergency relief camps in order to get the fire on time, he should of course move in whatever organization of experienced outside men he feels is necessary to enable him to corral the fire by the end of the work period concerned. But such exception to the general rule should be uncommon.

3. If you dislike to use men in considerable numbers with the waste which inevitably accompanies large increases in the size of fire fighting organizations, the remedy is to attack the problem of producing more than the usual amount of held line per man hour. I am unable to regard our customary standards of held line production as due to anything but our own deficiencies as students, organizers and executives. We have made some headway in the development of machine tools which are of great importance in the speeding up of held line construction and for increasing the output of held line per man hour. But when it comes to the techniques of organizing and managing men for a high speed hand tool job of line construction I must admit that my feeling is that we are much nearer to where we were in 1910 than to where we ought to be today.

If in our thinking we could break clean away from our accustomed habits and take a fresh start, what would we set up as the inescapable limitation upon the speed with which a line can be constructed from a fixed point on around a fire through a stand of heavy chaparral, for example? Aside from the question of safety in working men, is there any inescapable limitation upon our speed under such circumstances except the limitation upon the speed which one man can make when floundering through a heavy stand of brush, making a slash with his brush knife each step or so? Could we not, if we mobilized sufficient properly organized and directed men behind him, widen and complete the clearing, do whatever trenching is necessary and even under some circumstances complete the backfiring at rates per hour which would not fall too far below the speed per hour made by this head man. Incidentally, this head man should of course be changed (with the rest of the crew) from time to time if the task was to make the maximum attainable speed from some single point at which a line could be started?

4. Remember that prompt demobilization after corraling can do wonders to keep FF costs down. Some of the highest arts in fire suppression are involved in (a) decisions as to what mop up work to do, (b) executive skill in crowding mop up and (c) decisions as to cutting down the crew as danger diminishes after corraling and mop up.

Very truly yours,

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Forester