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STATE OF CALIFORNIA
THE RESOURCES AGENCY

DEPARTMENT OF FORESTRY
FIRE CONTROL
HANDBOOK



THIS FIRE CONTROL HANDBOOK

individual number:

Issued by the California
Department of Forestry

IS ASSIGNED FOR OFFICIAL USE TO THE
FOLLOWING PERSON, STATION OR VEHICLE:

Those books assigned to individuals are to be continuously cared for and maintained by that person. Should the employee be transferred or separated from CDF service, the books shall be returned to his supervising officer, or otherwise deposited in accordance with Region instructions.

Those books assigned to stations or vehicles shall remain at the place or unit of assignment and be considered the particular responsibility of the Captain or Engineer in charge at any time. In the event such a station or vehicle is inactive (for example, during winter) the Unit supervisor must arrange to recover and maintain Handbooks that would otherwise be uncared for.

In Conservation Camps, the Forestry Superintendent shall see that two Handbooks are kept permanently in Camp and made available for the local use and reference of CDF personnel assigned to that Camp.

HANDBOOK ENTRY RECORD

[illegible]

FIRE CONTROL HANDBOOK

INTRODUCTION

Handbook 5600 is approved and issued by the Director as the current operational CDF Handbook for all "fire-going" personnel. The information and instructions it contains must be respected in the same manner as any other direct order from the Director.

The Handbook is not intended as a training document. It contains the distillation from fact and knowledge that CDF fire managers can be held responsible for knowing. Such subjects should have been previously covered in fire training programs or found developed more fully in the *Principles of Forest Fire Management*, which is the satellite issuance basic to all fire suppression.

That publication and this Handbook were originally compiled as closely related complementary documents. However, the *Principles of Forest Fire Management* is not to be considered an official instructional issuance of the CDF. It is intended for informational or specific training purposes.

If statements in this or any other officially designated instructional document of the CDF appear to differ from statements in *Principles*, then the instructional document will take precedence. The passage of time and the development of new or different operational procedures may cause such a situation.

The format of this Handbook includes the following items to assist the user to locate its contents quickly:

1. Table of Contents
2. Chapter Outlines
3. A pink tab divider at the beginning of each Chapter
4. Key words in italics
5. Index

The contents of this Handbook may be amended from time to time, and field supervisors may

FIRE CONTROL HANDBOOK

prepare Supplements as deemed necessary and in accordance with Manual of Instructions Chapter 0150. Supplement sheets issued by Region or Ranger Unit Offices should be entered generally preceding the subject discussed, or as otherwise specifically indicated. When basic text sheets are added or deleted, the page number will so indicate. Page 65-1, 65-2, shows two new pages were required for expanded text.

Only officially issued material is to be entered in this Handbook. Each Handbook "holder" will be responsible for maintenance of the Handbook at all times.

FIRE CONTROL HANDBOOK

Table of Contents

<u>Chapter</u>	<u>Item</u>	<u>Page</u>
5601	OBJECTIVES, POLICY AND RESPONSIBILITIES	3
5602	FIRE ORGANIZATION	17
5603	DUTY STATEMENTS	53
5604	OPERATING GUIDES	109
5605	NON-CDF PERSONNEL AND EQUIPMENT	199
5606	DEMOBILIZATION	237
5607	SAFETY	251
5608	PRE-ATTACK PLANNING	271
5609	SUPPORT TEAMS	281
5610	FLOOD CONTROL OPERATIONS	289
5611	WEATHER SUPPORT FOR PROJECT-TYPE FIRES	299



FIRE CONTROL HANDBOOK

5601 OBJECTIVES, POLICY, AND RESPONSIBILITIES

CHAPTER OUTLINE

ITEM	Page
5601 OBJECTIVES, POLICY, AND RESPONSIBILITIES.....	3
.1 HANDBOOK 5600 OBJECTIVE.....	3
.2 FIRE PROTECTION OBJECTIVE.....	3
.3 FIRE ATTACK POLICY.....	3
.4 RESPONSIBILITIES (STATUTORY, CONTRACTUAL, OR DELEGATED POLICY).....	3
a. State Responsibility Areas.....	3
b. General Responsibilities.....	5
c. State Responsibility Areas within Fire Districts.....	5
d. Fire Protection Agreements and Contracts.....	6
e. Ranger-in-charge.....	6
f. Fire Boss.....	7
g. Employees (to be written).....	7
h. Fire Tools and Equipment.....	8
i. Landowner and Operator.....	8
j. Evacuation of Fire Areas.....	10a
k. Closure of Public Roads.....	10b
l. Closure of Command Posts.....	10c
m. Contract Counties.....	10d
n. <u>Fire Districts</u>	10e
o. Adverse Damage Claims.....	10g
(1) General.....	10g
(a) Prevention.....	11
(b) Reports.....	11
(c) Employee Behavior.....	11
.5 EMERGENCY RESPONSE.....	12
a. Response Codes.....	12
b. Use of Emergency Warning Devices...	13
c. Exemption of Authorized Emergency Vehicles.....	13
d. Duty of Driver.....	14
e. Emergency Response Guidelines.....	14
.6 TRAINING.....	16

5601 OBJECTIVES, POLICY AND RESPONSIBILITIES

.1 HANDBOOK 5600 OBJECTIVE

The objective of Handbook 5600 is to assist fire managers to plan, organize, staff, direct, control and evaluate a fire organization to *control unwanted fire* and other emergencies in a professional manner.

.2 FIRE PROTECTION OBJECTIVE (Sec. IIIA, Handbook 5000)

The *Director's* fire protection objective states that a system of basic fire protection shall be provided so that damages to life, property, and natural resource values shall be held at or below some level which is acceptable within social, political, and economic constraints. This objective is broad in concept, however it provides a framework within which the CDF's fire protection administrators can plan and implement a fire protection system, and also within which fire managers can plan strategy and tactics on a given fire.

.3 FIRE ATTACK POLICY (Sec. 5611 and 5132, Manual of Instructions.)

It is the policy of the CDF to quickly and aggressively attack all *unwanted fires* in that area where the CDF has assumed primary direct protection responsibility by virtue of law, contract or mutual understanding, and to continue aggressive suppression operations until the fire is under *control*. The strength of initial attack and follow-up action shall be relative to values threatened and difficulty of control.

The intent shall be to control all *unwanted fires* within the *first burning period*.

.4 RESPONSIBILITIES (STATUTORY, CONTRACTUAL, OR DELEGATED POLICY)

a. STATE RESPONSIBILITY AREAS (Sec. IIA, Handbook 5000)

FIRE CONTROL HANDBOOK

Sections 4125-4128 of the Public Resources Code establish the criteria for the classification of certain lands within the State of California as being *State Responsibility Areas* for fire protection. These code sections state that the *Board of Forestry* "shall classify all lands within the State, without regard to any classification of lands made by or for any federal agency or purpose, for the purpose of determining areas in which the financial responsibility of preventing and suppressing fires is primarily the responsibility of the State."

The criteria established by statute for the *Board of Forestry* to determine which lands shall be *State Responsibility Areas* are as follows:

- "a. Lands covered wholly or in part by forest or by trees producing or capable of producing forest products.
- "b. Lands covered wholly or in part by timber, brush, undergrowth, or grass, whether of commercial value or not, which protect the soil from excessive erosion, retard runoff of water, or accelerate water percolation if such lands are sources of water which is available for irrigation or for domestic or industrial use.
- "c. Lands in areas which are principally used or useful for range or forage purposes which are contiguous to the lands described in subdivisions a. and b."

Lands owned or controlled by the Federal Government or any agency of the Federal Government are excluded, as are also lands within the exterior boundaries of any city.

Legislative intent was to include within *State Responsibility Areas* nearly all timbered, brush, and wildland grazing areas. Most mountain and foothill areas, if not covered by trees capable of producing forest products, are sources of water available for irrigation, domestic or industrial use, or at least are grazing lands "contiguous thereto." Therefore, most mountain and foothill

FIRE CONTROL HANDBOOK

lands fit the classifications specified. Excluded as far as privately owned lands are concerned are areas which contain mostly agricultural lands (cultivated or irrigated land) or relatively flat grassland areas separated from watershed areas by significant strips of agricultural land. Desert areas which do not receive sufficient rainfall to be considered principally used for grazing or water production are also excluded.

b. GENERAL RESPONSIBILITIES (Sec. III G., Handbook 5000)

Historically, the primary responsibility for the protection of life and property from fire has been delegated to local government. The CDF must respond to fires originating in buildings or other improvements and vehicles in *State Responsibility Areas* during the *wildland fire season* because fires of this origin are potential *wildland fires*. In addition, it is CDF policy to respond to fire calls during the *non-wildland fire season* with State-supported personnel and equipment, if this personnel and equipment are available at the time and place the call is received.

The CDF, because it maintains a widespread fire fighting service, can also be assumed to have a certain responsibility for the protection of structures owned by other State agencies (especially if they are not in cities). (Sec. 5124, Manual of Instructions)

c. STATE RESPONSIBILITY AREAS WITHIN FIRE DISTRICTS (Sec. IIB, Handbook 5000)

Section 13821 of the Health and Safety Code provides that the fire protection responsibility for timbered, brush, and grasslands established as *State Responsibility Areas* shall remain that of the State, while the district shall have the fire protection responsibility for structures in the area. This section also states that *commercial forest lands* which are timbered lands declared to be the responsibility of the State for fire protection shall not be included within a district (excepting counties of the 18th class).

FIRE CONTROL HANDBOOK

d. FIRE PROTECTION AGREEMENTS AND CONTRACTS (Sec. IIE, Handbook 5000)

The *Director* is given broad authority to enter into fire protection contracts. These may be for the purpose of contracting the protection of *State Responsibility Areas* to other fire protection agencies, or for the purpose of the State providing a fire protection service which may be the financial responsibility of other government units.

Section 4141 of the Public Resources Code authorizes the *Director* to enter into cooperative agreements for fire protection with the Federal Government. By virtue of authority granted the *Director* in Section 4142, Pub. Res. Code, he may enter into contracts with counties, districts, and cities to furnish fire protection to structures and rural areas which would otherwise require the establishment of some type of fire department by the local government.

In accepting the duty of direct protection of local values for a proper payment consideration the State has not permanently assumed any of the basic responsibility of the private owner or local government; it is serving simply as a paid contractor. (Sec. 5124, Manual of Instructions)

e. RANGER-IN-CHARGE

Responsibility for fires burning in a Ranger Unit remains with the *Ranger-in-Charge* of the Unit (unless he is relieved of that responsibility.) Delegation of immediate responsibility for controlling the fire does not relieve the Ranger of basic directional responsibility.

The *Ranger-in-charge* will be responsible for seeing that every fire wherein the CDF assumes primary responsibility for direct abatement action has a qualified CDF employee as *Fire Boss*.

The *Ranger-in-charge* will also be responsible for designating the appropriate qualified *Fire Boss* for the fire situation. When several fires are burning in a Ranger Unit, the *Ranger-in-charge* will work with each *Fire Boss* to the extent necessary to coordinate all fire activities.

f. FIRE BOSS

There is always one identifiable *Fire Boss* on every fire, from first attack until extinguishment. However the assignment may change with a change of the situation. Every *Fire Boss* shall take whatever aggressive action he deems necessary and expedient in controlling the fire relative to values threatened and difficulty of control.

It is important that the identity of the *Fire Boss* must be clearly known at all times, both to the Ranger Unit *Emergency Command Center* (ECC) and to the subordinate officers on the fire.

Until someone arrives at the scene, the ECC will fill the role of *Fire Boss*. After the arrival of an on-scene *Fire Boss*, there must never be any doubt who is in charge of the fire. If there is, the ECC is responsible for clearing up that doubt by questioning the last known *Fire Boss*.

The ECC may designate *Airco* (if he has arrived at the scene) as *Fire Boss* until a qualified person arrives on the ground. The ECC must consider the qualifications of the person on the ground and his knowledge of the fire situation based upon information he has received. For example, LT Fire Apparatus Engineers (FAE) and inexperienced FAE's may not be able to provide effective *Command* at the fire scene in some situations. More experienced FAE's and Fire Captains would qualify as *Initial Attack Fire Bosses*.

Upon arrival at a fire of the first person who should become *Fire Boss*, the ECC will advise that person and all other committed attack units of that fact by broadcasting an announcement. Each time in the life of a fire when *Command* changes, the ECC will broadcast the change to all attack units on the fire.

The arrival at the scene of an officer of superior rank to the *Fire Boss* does not automatically signify a change of *Command*. There can only be one *Fire Boss* on any one fire at any one time. A transfer of responsibility of *Command* by a superior at any level must be clearly indicated and made known.

g. EMPLOYEES (To be written)

h. FIRE TOOLS AND EQUIPMENT (Sec. 5301, Manual of Instructions)

The CDF will provide fire tools and fire equipment for the accomplishment of its fire control mission. These items may be State-owned, private or contractor-owned, or owned by other public agencies. Only good quality tools and equipment will be acquired for fire control purposes.

Administrators are responsible for maintaining all fire tools and equipment in operating condition, in accordance with established guidelines and procedures.

i. LANDOWNER AND OPERATOR (Sec. 0229 & 5124, Manual of Instructions)

All persons or parties owning or controlling land have a basic responsibility to abate a fire nuisance on the property. The law says: a person shall not willfully or knowingly allow fire to burn uncontrolled on land which he owns or controls, or to escape to the lands of any person other than that of the owner. Professional fire departments have been developed because it is simply not practical to rely entirely upon individual land holders to adequately relieve the general community of excessive fire loss.

Nevertheless, the landowner or operator is expected to do what he reasonably can. The following procedures should be followed:

- (1) if the responsible State fire official observes upon arriving at the fire scene, that any local industrial operator has failed to take fire control action, the officer should make a written notation of such observations for transmittal to his supervisor. Any such report must be a careful, factual, account of the prevailing situation;
- (2) the State fire official shall take over the direction of the control

FIRE CONTROL HANDBOOK

action on a wildfire upon his arrival whenever the fire is so located that it would normally be his primary responsibility:

- (3) whenever the State fire official makes a judgment that forces or equipment in addition to those of the State are required, and he makes a request for such aid from the local owner or operator, he should be very specific about the requested forces, under the assumption that reimbursement for such assistance may be claimed;
- (4) no particular landowner may personally expect reimbursement for effort expended in the suppression of fires burning upon or immediately threatening his property;
- (5) the State officer may, if he has confidence in the operator or owner, transfer responsibility for patrol of a controlled fire line. But the State shall continue to maintain general supervision of such patrol.

FIRE CONTROL HANDBOOK

j. EVACUATION OF FIRE AREAS

CDF peace officers may close areas where a menace to public health or safety exists because of a calamity, such as flood, storm, fire, earthquake, expulsion, accident or other disaster. (Penal Code, Sec. 409.5(a)). This has the effect of giving CDF peace officers authority to evacuate fire areas when necessary. CDF peace officers should exercise this authority when there is an imminent threat to human life. If there is no imminent threat to human life, the CDF peace officer should:

- (1) request that such action be taken by the California Highway Patrol, the local Sheriff, or Police Department;
- (2) recommend the extent of the action, specifying reasons for evacuation, describing the time when the evacuation should be completed; and
- (3) cooperate with law enforcement agencies to the extent of available CDF personnel and equipment not needed for fire work.

Section 409.5(d) of the Penal Code allows authorized representatives of the news media to enter areas closed due to calamities, and there is no legal authority to prevent them from doing so. Any unauthorized person entering a closed area and who willfully remains within such area after receiving notice to leave is guilty of a misdemeanor (Penal Code, Sec. 409.5.(c)).

FIRE CONTROL HANDBOOK

k. CLOSURE OF PUBLIC ROADS

CDF peace officers may close areas where a menace to public health or safety exists because of a calamity, such as flood, storm, fire, earthquake, explosion, accident or other disaster. (Penal Code, Sec. 409.5(a)). This has the effect of giving CDF peace officers authority to close public highways or roads. However, Section 2812 of the Vehicle Code requires that the governmental agency having control over the highway shall be immediately notified of the reason for the closing and the location.

Therefore, CDF peace officers should only exercise their authority to close public highways or roads when the California Highway Patrol (CHP), local Sheriff (SO), or Police Department (PD) is not available to initiate the closure. In addition to the menace to public health or safety, CDF peace officers must consider the necessity to protect both fire control personnel and the general public from potential accidents due to temporary hazards of fire, smoke, etc. The CHP, SO, or PD should be requested to take over the closure as soon as possible.

When a closure is established by CDF peace officers, temporary flagmen should be posted. CDF-owned or operated fire control vehicles will carry warning flags or other similar devices for directing traffic.

Section 409.5(d) allows authorized representatives of the news media to enter areas closed due to calamities and there is no legal authority to prevent them from doing so. Any unauthorized person entering a closed area and who willfully remains within such area after receiving notice to leave is guilty of a misdemeanor (Penal Code, Sec. 409.5(c)).

FIRE CONTROL HANDBOOK

1. CLOSURE OF COMMAND POSTS

CDF peace officers may close the immediate area surrounding any command post activated for the purpose of abating any calamity described in the previous section (Penal Code, Sec. 409.5(b)). This also applies to command posts not located near the calamity, i.e., a base camp or spike camp located in an area other than the actual fire. Any unauthorized person entering a command post area and who willfully remains within such area after receiving notice to leave is guilty of a misdemeanor (Penal Code, Sec. 409.5(c)).

The *Fire Boss* is responsible for deciding whether to close the command post area whenever he feels the presence of unauthorized personnel as interfering or distracting to the command post operation. The command post area must be adequately signed if the *Fire Boss* decides it will be closed. The signs should read as follows:

"Notice! This field command post is closed to entry by unauthorized persons by authority of Section 409.5(b) of the California Penal Code. Any unauthorized person who willfully and knowingly enters this area or who willfully remains in this area after given notice to leave shall be guilty of a misdemeanor (Penal Code, Sec. 409.5(c))."

CDF officers closing and controlling the command post area should be aware that duly authorized representatives of any news service, newspaper, or radio or TV station or network may not be prevented from entering the command post area (Penal Code, Sec. 409.5(d)).

FIRE CONTROL HANDBOOK

m. CONTRACT COUNTIES

The term "Contract County" applies to those counties which the CDF annually allocates State funds for providing wildland fire protection to State Responsibility Area (SRA) (Marin, Santa Barbara, Kern, Ventura, and Los Angeles). These counties provide direct fire protection to SRA with their own fire organization under the supervision of a County Fire Warden (Sec. 4129, Public Resources Code).

The CDF has the primary financial responsibility for providing fire protection to these lands. The CDF and the Board of Forestry must first assure themselves that the County will perform the job at least as well as the CDF could with the funds provided by the Legislature. (The fact that the county may be willing and able to spend a great deal more for its own organization has nothing to do with the basic legal responsibility placed upon the CDF).

Each fiscal year an agreement is negotiated between the CDF and the county. The amount of State funds provided for this purpose is based upon the same type and level of organization the CDF would provide to SRA under direct protection (Section 4132, Public Resources Code).

The expenditure of Emergency Funds in Contract Counties is permitted as long as such expenditures are under the direction of a CDF official.

FIRE CONTROL HANDBOOK

n. FIRE DISTRICTS

Fire districts are governmental entities established in conformance with state law for the purpose of preventing and suppressing fires within a designated area. This includes Fire Protection Districts, County Service Areas, Community Services Districts and all such agencies having legal authority to initiate the collection of special taxes, service charges, etc., for fire protection purposes whether or not the agencies perform the actual work of fire protection.

The primary purpose for creating fire districts is to protect life and property values from unwanted fire. Therefore, a dual responsibility exists within fire districts in State Responsibility Area (SRA). The CDF is responsible for protecting the natural resource values, i.e., timber, watershed and rangeland, and the fire district is responsible for protecting life and property values.

When a local fire district requests technical advice, the CDF official should provide it to the best of his ability. However, this assistance should not unduly interfere with his regular duties, and he should not place himself in the position of a partisan in some heated local discussion. The CDF official should naturally avoid giving the impression of being an expert on some subject in which he cannot rightfully qualify as an expert.

When a CDF official assumes the position of supervisor or executive officer to a fire district, this is an entirely different situation. This could result from a specific contract, or possibly by specific request of a County Board of Supervisors acting under the general county-state ("Schedule A") local government fire protection contract.

CDF officials should adhere to the following guidelines for fires burning on SRA in fire districts:

FIRE CONTROL HANDBOOK

- (1) The CDF's job must be accomplished even though it is contrary to the desire of the local agency.
- (2) The fire district should be encouraged to do the full share of its own job. (This would be the entire job, with the CDF providing mutual aid in the case of a structural fire, and the district providing mutual aid assistance to the CDF on State Responsibility fires). If the district refuses or neglects to do this, then the CDF official is obliged to perform whatever work is necessary to accomplish the CDF's job.
- (3) When a fire district is entirely capable of and willing to perform its full share of the suppression job, the CDF still has the responsibility to determine that the suppression effort is satisfactory.

With such a possibility of variable circumstances, it is obvious that the common sense approach to developing a proper relationship between the CDF official and each fire district is the establishment of individual informal agreements or understandings.

FIRE CONTROL HANDBOOK

Since these mutual agreements should be put in writing, the CDF official must be extremely careful that he does not commit the state to some action beyond his authority. The agreements should embrace only the strategic action contemplated by both agencies in the event of fire and other emergencies and also such prevention activities as each could undertake. If any unusual expenditure (paid or received) is contemplated, or any exchange of property or funds is made, then it is mandatory that the Director of Finance approve the agreement prior to the event.

See Section 5410 of the Manual of Instructions in respect to mutual aid agreements.

o. ADVERSE DAMAGE CLAIMS (Sec. 6610, Manual of Instructions)

(1) GENERAL

Employees of the CDF in the conduct of official business may easily become involved in incidents which could lead to claims against the State. Such things often occur wherever land or property is being used by an agency; and they are especially likely to occur during the exercise of the CDF's fire control duties.

The nature of fire and other emergency activity work invites accidents, injuries and general confusion. In addition fire control forces may take actions that are reasonably necessary to control a fire nuisance or other emergency. To accomplish this duty, it is sometimes necessary to breach fences or locked gates, sacrifice property in a backfire action, or perform other actions that cause damage to personal property. It will be considered reasonable and proper if the best judgment is used by responsible personnel

according to the conditions that exist at the time of the emergency.

The CDF is not obligated and not authorized to make actual expenditures or effort to repair or replace private property.

The above stated conditions make it imperative that each employee continuously consider three aspects of adverse damage claims as outlined below:

(a) PREVENTION

CDF employees must exercise all reasonable caution in the performance of prescribed duties to prevent any act or eliminate any condition which may cause injury to persons or damage to property.

The rules set forth below must be learned and followed:

- (1) never destroy or damage property at any time unless necessary to control an emergency,
- (2) never destroy or damage property without obtaining the owner's consent, if practical,
- (3) try to minimize damage and destruction.

(b) REPORTS

If a CDF employee has knowledge of the occurrence of some accident or incident which involves the CDF, he should report promptly through channels in the form of a complete written memorandum to the responsible *Regional Chief*.

See Manual Chapter 1260 regarding the use of Form 268 (Accident Report Other than Motor Vehicle) and Chapter 1250 regarding Vehicle Accidents.

(c) EMPLOYEE BEHAVIOR

Because of the type of work in which the CDF engages, it is not uncommon for citizens to believe that they have suffered some damage due to CDF activity for which they should be compensated. It is, therefore, quite important the CDF employees understand how they

should respond when confronted by a party claiming to have been injured. Often such a confrontation is made under high emotional stress. The CDF employee should:

- (1) Remain calm and always courteous.
- (2) Make no admissions of wrongdoing, but at the same time explain that a full report will be made to a proper superior.
- (3) Explain that the State Board of Control will give a thorough and unbiased hearing to the claimant.
- (4) Advise those claimants who insist upon taking formal action to correspond with the Secretary, State Board of Control, State Capitol, Sacramento, 95814. The claimant may be supplied with a copy of Standard Form 275 titled "Damage Claims Against the State of California." This informational form is self-explanatory and through its use the matter at issue is clearly transferred to the proper body.
- (5) Do not offer to secure claim forms for the protesting party. Any formal claim becomes a matter between the claimant and the Board of Control as to procedure.

5 EMERGENCY RESPONSE (Sec. 2637, Manual of Instructions)

a. RESPONSE CODES

Emergency response codes are classified as follows:

- Code 2 - Routine calls - proceed immediately without siren and red light,
- Code 3 - Emergency calls - proceed immediately with siren and red light,
- Code 5 - Standby for possible dispatch of personnel and equipment out of Ranger Unit or Region.

b. USE OF EMERGENCY WARNING DEVICES

Fire equipment and personnel are often moved from one Region or County to another during emergencies as well as within a Ranger Unit. Response is as follows:

- (1) on emergency response within the Ranger Unit, red lights and siren will be used as necessary,
- (2) when responding to emergencies outside the Ranger Unit, red lights and siren will be used as necessary or when Code 3 response is requested by the *Emergency Command Center*.
- (3) when responding to emergencies where the response is for support of the other County or Region forces and not for attack, the red light and siren will not be used while enroute or returning unless there are specific instructions to do so.

At times it may be more desirable to use the rear facing amber light in lieu of the rotating red or the rear facing red light. Examples would be a slow moving transport going up a grade on a multiple lane highway, where the driver would want overtaking vehicles to be aware of the emergency vehicle but not necessarily wish the overtaking vehicle to remain behind or stop as required by law. Parked vehicles working along a roadside may display the amber light as a warning device in lieu of flashing or rotating red light.

c. EXEMPTION OF AUTHORIZED EMERGENCY VEHICLES

The driver of an authorized emergency vehicle is exempt from certain laws relating to speed limits, rights of way, and signs or signals when he is responding to a fire alarm or other genuine emergency, (but not when returning from such an emergency). This is true providing the red lights are turned on and the siren is sounded to the extent reasonably necessary

as a warning to other drivers and pedestrians. CDF emergency vehicles will not proceed thorough stop signs or signals without first slowing to a maximum of 5 mph.

d. DUTY OF DRIVER

Drivers must be cognizant of the limitations of visual and audible warning devices, i.e., red lights and sirens. The Safety of the general public must take precedence in all cases over the response speed of the emergency vehicle.

The law requires that the driver of an authorized emergency vehicle which is responding to an emergency use good judgment. It does not relieve him from the duty to drive with due regard for the safety of all persons using the highway, nor protect him from the consequences of an arbitrary and careless exercise of exemption privileges. Employees are, however, not liable for civil damages arising out of the proper operation in line of duty, of an authorized emergency vehicle when responding to an emergency call.

e. EMERGENCY RESPONSE GUIDELINES

The following guidelines are established in accordance with the California Vehicle Code:

- (1) The fact alone that a vehicle is an "authorized emergency vehicle" does not relieve the driver from the duty of compliance with the rules of the road.
- (2) Before a pedestrian or motorist can yield the right-of-way, he must be afforded the opportunity to do so.
- (3) In traversing an intersection (Code 3) the speed of the emergency vehicles shall not be greater than that enabling the vehicle to stop without collision should his right of way be violated. At times it may be necessary to come to a *complete stop* at an intersection and then

cautiously proceed after it has been determined that the intersection is clear.

- (4) Do not pull up immediately behind a vehicle and suddenly sound the siren. He may stop right in front of you.
- (5) Do not pass on the right unless no other course is open, and then only at safe speeds and after you are positive that the car you are passing will not drive to the right as you go by.
- (6) Do not sound the siren at its highest pitch continuously. Fluctuate it throughout the tonal range.
- (7) Keep near the center of the roadway so oncoming vehicles can see the red light approaching.
- (8) Do not closely follow another emergency vehicle. A motorist may yield to the first emergency vehicle and then pull out in front of you.
- (9) The best route of travel for making an emergency response often entails driving on a freeway. The use of red lights and siren on a freeway is not required or recommended, providing the vehicle is not exceeding the posted speed limit or disregarding other traffic regulations. The unnecessary use of siren and red lights on a freeway may cause confusion on the part of other traffic, which can impede the safe flow of traffic.
- (10) The use of the air horn shall be kept to a minimum. Excessive use of the air horn may drown out the siren. During Code 3 responses the device should normally be used only when approaching intersections and then two or three short blasts should suffice.

- (11) When responding Code 2 or Code 3, whether night or day, headlights should be lighted. This provides an additional margin of safety by assisting in drawing attention to the apparatus.

.6 TRAINING

The object of training is, of course, to facilitate the accomplishment of some type of work. Without question, the best place and time to observe and reflect upon actions taken during a particular fire suppression project is at the scene of the fire, immediately after the primary fire control effort has been completed.

Therefore, if other conditions permit, it is highly desirable that attack unit supervisors and other officials who have borne some of the responsibility of the actual fire suppression action be permitted to utilize the immediate past experience for the purpose of training CDF employees in fire control work. For example, a Fire Captain or a Fire Apparatus Engineer may find an excellent opportunity to demonstrate why a fire line was constructed in one place and not in another, or why the fire was attacked in some particular manner.

Such a practical training method obviously should have considerable advantage over any presentation of the same conditions in a classroom discussion possibly by and for individuals who were not actually present and engaged at the scene of action. This practical training is not, of course, the same thing as a Board of Review although it certainly can serve some of the same ends.

FIRE ORGANIZATION



FIRE CONTROL HANDBOOK

5602 FIRE ORGANIZATION

Chapter Outline

	<u>Item</u>	<u>Page</u>
5602	FIRE ORGANIZATION.....	19
.1	FIRE STRATEGY-SITUATION.....	19
.2	FIRE ORGANIZATION OVERVIEW.....	19
a.	Fire Organization Functions.....	20
(1)	Command Function.....	21
(a)	Command Staff.....	21
(b)	General Headquarters (GHQ) (to be written).....	22
(2)	Attack Function.....	22
(3)	Planning Function.....	23
(4)	Service Function (Logistics).....	24
(5)	Finance Function.....	25
b.	Unity of Command.....	25
c.	Transfer of Information.....	25
d.	Accountability.....	26
e.	Span-of-Control.....	26
(1)	Attack Function.....	27
(a)	Ground Attack Units.....	27
(b)	Overhead Personnel.....	27
(c)	Task Force.....	28
.3	INITIAL ATTACK FIRE.....	29
a.	Definition.....	29
b.	Fire Organization Structure.....	29
(1)	Fire Boss Checklist.....	31
c.	Multiple Fires.....	32
(1)	Fire Organization Structure.....	32
(2)	Functional Coordination.....	32
.4	EXTENDED ATTACK FIRE.....	33
a.	Definition.....	33
b.	Fire Organization Structure.....	35
(1)	Fire Organization Functions.....	35
(2)	Fire Boss Checklist.....	36
c.	Multiple Fires.....	37
(1)	Fire Organization Structure.....	37
(a)	Air Attack.....	37
(b)	Ground Attack.....	39
(2)	Functional Coordination.....	39

FIRE CONTROL HANDBOOK

.5	MAJOR FIRE.....	39
a.	Definition.....	39
b.	Fire Organization Structure.....	39
	(1) Fire Organization Functions.....	41
	(a) Command Function.....	41
	(1) Fire Boss Checklist.....	41
	(2) Zones.....	43
	(b) Attack Function.....	43
	(1) Ground Attack.....	43
	(2) Air Attack.....	44
	(c) Service Function.....	44
c.	Multiple Fires.....	44
	(1) Fire Organization Structure.....	44
	(2) Functional Coordination.....	44
	(3) Air Attack Coordination.....	44
.6	JOINT FIRES.....	45
a.	Definition.....	45
b.	Fire Organization Structure.....	45
	(1) Joint Fire Organization Functions.....	45
.7	OTHER AGENCY FIRE - CDF ASSISTANCE.....	48
a.	Fire Organization Structure.....	48
.8	FIREScope.....	51
a.	General.....	51
b.	Incident Command System.....	51
c.	Incident Organization Structure.....	51

FIRE CONTROL HANDBOOK

5602 FIRE ORGANIZATION

.1 FIRE STRATEGY - SITUATIONS

Each wildland fire is a dynamic force that is influenced by the factors of fuel, topography, weather, and time. Each fire presents a different problem depending upon the relationship and variability of these factors. To control the fire, an organization of personnel and equipment must be brought to bear against it. The size of the organization and its plan of attack *Strategy* will therefore depend upon the current and predicted behavior of the fire *Situation*. Thus a *Fire Strategy-Situation* encompasses the total fire problem together with the action required to control it.

A particular *strategy-situation* depicts a condition that prevails at a given time. It can change to a different *strategy-situation* at another time during the life of the fire. There is always a *strategy-situation* existing as long as the fire exists.

The fire manager will automatically think in terms of the *strategy-situation* confronting him. In order to reduce a complex and changing problem to practical and workable dimensional units of use and reference, the following three stages or steps of organizational development have been adopted:

INITIAL ATTACK FIRE
EXTENDED ATTACK FIRE
MAJOR FIRE

These levels, or steps of organization need, will serve in the thinking and communicating among all the responsible fire managers in organizing personnel and equipment to control the fire. *Fire organization structures* for these levels will be presented in this chapter.

.2 FIRE ORGANIZATION OVERVIEW

A "maximum effort" fire organization structure which contains all positions expected to be required

FIRE CONTROL HANDBOOK

for the largest magnitude of each fire, is presented for *Initial Attack*, *Extended Attack*, and *Major Fires*. Each identifies specific organizational positions (overhead and line), defines their general functions, and identifies working inter-relationships. The fire organization structures should be used with complete flexibility of utilization in that a position is activated only when needed.

Furthermore, the positions may be combined or further divided by either multiple assignment (in which an individual functions in more than one capacity and answers to each according to need) or by delegation of responsibility (in which case the individual divides his responsibilities among one or more subordinates). Thus, the number of individuals within the fire organization structure may be greater or fewer than the number of positions defined in each of the three structures.

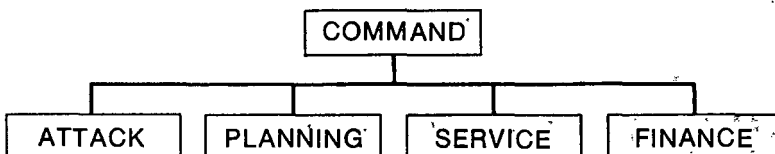
The transition from *Initial Attack* → *Extended Attack* → *Major Fire* will usually be evolutionary, i.e., specific positions will be periodically added to the fire organization structure as required, eventually resulting in the achievement of the next expanded level.

The fire organization structures were developed so as to be applicable to other types of emergency incidents the CDF becomes involved in, i.e., floods, oil slicks, firemen strikes, snow removal, etc.

a. FIRE ORGANIZATION FUNCTIONS

The fire organization structure includes five basic fire organization functions:

COMMAND
ATTACK
PLANNING
SERVICE
FINANCE



FIRE CONTROL HANDBOOK

Each of these functions is involved in all fire control operations. The prompt control and extinguishment of a fire is accomplished through efficient coordination of these functions. Modules of these functions, each representing jobs to be done and personnel to do them, are activated according to the requirements of the fire.

For example, on an *Initial Attack Fire* the *Fire Boss* personally fulfills the *Command*, *Attack*, *Planning* and *Finance* functions and some of the *Service* function. The *Ranger Unit Emergency Command Center* will carry out most of the action required for *Service*.

Extended Attack and *Major Fires* require expansion and development of the *fire organization functions*. The *Fire Boss* directs *Command* and designates and supervises individuals in the other functions.

(1) COMMAND FUNCTION

Command provides executive direction to the entire fire organization and establishes a fire control objective. The *Command* function is responsible for developing fire strategy and putting it into effect in the most satisfactory manner.

The *Fire Boss* is the fire manager. He establishes the *fire organization structure* which is appropriate for the magnitude of the fire. He may be assisted by immediate assistants (*Assistant Fire Bosses*), a *Command Staff*, and a *GHQ*, as needed.

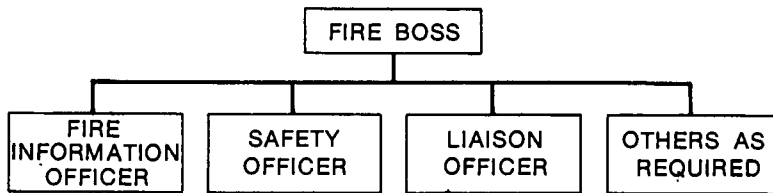
The fire manager must analyze the fire problem by evaluating the known circumstances, and estimating future developments. His ability to adequately accomplish this will often mean the difference between early control of the fire and a long campaign.

He should properly develop and complete a plan of attack, organize and direct effectively any incoming attack units, foresee the need for additional personnel and equipment, and ask for them.

(a) COMMAND STAFF

The *Command Staff* consists of a *Fire Information Officer*, *Safety Officer*, *Liaison Officer*, and others as required.

FIRE CONTROL HANDBOOK



These individuals are assigned staff responsibilities and have no line authority. They provide advice and service to the *Fire Boss*. The positions can be activated/deactivated by the *Fire Boss* as he desires. Generally, this will be in accordance with the requirements of the fire and availability of personnel.

On an *Initial Attack Fire* the *Fire Boss* would be responsible for *Safety* and *Liaison*, and the Ranger Unit *Emergency Command Center* will be responsible for *Information*. *Extended Attack* and *Major Fires* will require expansion and designation of individuals to these positions.

(b) GENERAL HEADQUARTERS (GHQ) (to be written)

(2) ATTACK FUNCTION

Attack combines the Department's Fire Protection Plan components of Ground Attack, Air Attack and Mutual and Outside Aid. *Attack* is responsible for the management of all tactical activities on the fire line. The objective of *Attack* is to respond with *Attack* units to control unwanted fire and other emergencies in a professional manner.

Attack personnel are given wide latitude to make modifications in *Action Plans* as are necessary to meet the actual conditions. However, modifications must be coordinated with other fire line activity and major changes must be approved by the *Fire Boss*. No one will be criticized for taking whatever action good judgment dictates under emergency or unforeseen circumstances when time does not permit contacting higher line officials or the *Fire Boss*.

Attack personnel can often supply the best information about the current and anticipated fire

situation by keeping fire headquarters advised of "on the ground" conditions.

The *Fire Boss* is responsible for *Attack on Initial Attack Fires*. On *Extended Attack* and *Major Fires*, a *Line Boss*, *Zone Boss*, or *Assistant Fire Boss* will be assigned to fulfill the *Attack* function based upon the requirements of the fire.

(3) PLANNING FUNCTION

The *Planning* function is responsible for collecting, evaluating and utilizing information concerning the fire, ground and air attack resources, and other factors that are significant in: (1) assessment of the fire situation; (2) prediction of fire behavior; and (3) preparation of alternative strategies and tactics for suppression of the fire.

Planning is responsible for developing an *Action Plan* providing a plan of attack with basic instructions for the utilization of attack units. This plan will include such information as:

- (a) Specific tactics
- (b) Where specific activities (e.g. build line) will occur
- (c) How *Attack* action will be organized (e.g. sectors, divisions, and assignments)
- (d) *Attack* units to be utilized.

The *Plans Chief* will be responsible for preparing a *Preliminary Plan* with the aid of his staff. The *Fire Boss*, *Plans Chief*, *Service Chief*, and others as required, will then formulate a final *Action Plan*. The *Fire Boss* is responsible for final approval of the *Action Plan*.

The *Planning* function contains the following sub-functions:

COMMUNICATIONS

INTELLIGENCES (Includes fire weather forecasting)

RESOURCE STATUS

If a sub-function is not formally activated within the fire organization, the corresponding duties of that sub-function are assumed by the *Plans Chief*.

The *Planning* function is personally fulfilled by the *Fire Boss* on *Initial Attack Fires*. On *Extended Attack* (if needed) and *Major Fires*, the *Fire Boss* will designate a *Plans Chief* to fulfill this function.

(4) SERVICE FUNCTION (Logistics)

Service is responsible for providing ground and air resources, facilities, services, and supplies in support of the fire organization. The size of the organization structure needed for *Service* will vary in direct proportion to the number and types of personnel and equipment on the fire. *Service* personnel are "doers" as opposed to *Planning* personnel who are the "planners".

Service implements the ground and air resources for the *Action Plan* prepared by *Planning*. *Service* requests all ground and air resources, and services and supplies for the fire organization through the Ranger Unit *Emergency Command Center*. *Service* is also responsible for managing and operating a *Base Camp*, *Spike Camps* and *Staging Area*, as needed, to support the fire organization.

The *Service* function contains the following sub-functions.

- GROUND RESOURCE MANAGEMENT
- HELICOPTER MANAGEMENT
- SERVICE AND REPAIR OF EQUIPMENT
- SUPPLY
- CAMP MANAGEMENT

If a sub-function is not fully activated within the fire organization, the corresponding duties of that sub-function are assumed by the *Service Chief*.

On *Initial Attack* the Ranger Unit *Emergency Command Center* is responsible for *Service*. Coordination with the *Fire Boss* is necessary at this stage. On *Extended Attack* (if needed) and *Major Fires*, the *Fire Boss* will designate a *Service Chief* to fulfill this function.

(5) FINANCE FUNCTION

Finance is responsible for the management of all fiscal services required to support the fire organization. This will include the following:

- (a) Preparation of financial documents for the purchase of supplies, services and transportation.
- (b) Handling adverse damage claims.
- (c) Working closely with *Service* personnel on matters pertaining to financial controls and business management.
- (d) Monitor and counsel on expenditures of the *Emergency Fund*.
- (e) Coordinate expenditures with other fire protection agencies on *Joint Fires*.

The *Finance Chief* will serve as a fiscal advisor to the *Fire Boss* and others, as needed. He will also keep the *Fire Boss* informed of broadly estimated fire costs.

The *Finance* function will contain a number of *Finance Officers* depending upon the requirements of the fire. The *Finance* function is personally fulfilled by the *Fire Boss* on *Initial Attack Fires*. On *Extended Attack* (if needed) and *Major Fires*, a *Finance Chief* will be designated to fulfill this function.

b. UNITY OF COMMAND

Each subordinate should have but one supervisor. Superior officers should not break *unity of command* by giving direct instructions to subordinates of the *Fire Boss* unless some genuine local emergency situation exists. However, the superior does have his own responsibility to determine that actions on any fire are being properly carried out. Any action taken on his part to modify a situation should be taken through the responsible supervisor.

c. TRANSFER OF INFORMATION

The *fire organization structures* defines the *lines of authority*. However, it is not intended that the *transfer of information* be restricted to the *chain of command*. That is, an individual will receive his orders from his supervisor, however, he may give (or receive) information directly to a person in a different function of the organization.

d. ACCOUNTABILITY

One-person *accountability* has been established in the *fire organization structures*. More than one person may be assigned to a particular position; however, only one person will be designated as the "lead" position with one or more assistants. The "lead" position will be *accountable* for seeing that all required duties within the function or sub-function are properly performed.

Personnel assigned to "lead" positions are generally not relieved during the fire; instead, these personnel and their assigned assistants, or some other qualified person within their respective function, relieve each other (as well as work together) as they deem appropriate. For example, on *Extended Attack Fires* the *Intelligence Officer* may relieve the *Plans Chief* and the *Camp Manager* may relieve the *Service Chief*.

Personnel assigned to "lead" positions are responsible for planning, organizing, staffing, directing, controlling, and evaluating all work activities within their respective functions and sub-functions. Subsequently, replanning, reorganizing, etc., of work activities will be necessary throughout the duration of the fire line assignment.

e. SPAN-OF-CONTROL

There is a limit to the number of persons an individual can *effectively* supervise. The normal *span-of-control* for a supervisor is a minimum of three (3) subordinates and a maximum of seven (7), with an optimum of five (5). The *span-of-control* depends upon many factors, i.e., ability of subordinate and supervisor, number of skills being supervised, complexity of work, terrain, etc.

The complexity of directing the *Attack* function will have a significant effect upon *span-of-control*. Visual and communication links on the fire line will affect the number of subordinates an individual can effectively supervise. The *span-of-control* should be maintained at or below the optimum for fireline assignments.

For example, a *Sector Boss* with a walking *Sector* and hand crews may be able to effectively supervise only two (2) crews. A *Sector Boss* in a vehicle may effectively supervise five (5) engines along a mobile *Sector*.

Supervisors in the *Planning*, *Service* and *Finance* functions may be able to effectively supervise at or above the optimum level since their functions are not as complex as the *Attack* function. Visual and communication links will be a limiting factor here also.

Fire managers should use these guidelines for *span-of-control* when establishing a *fire organization structure*. This is especially important when making assignments for *Sectors* and *Divisions*.

(1) ATTACK FUNCTION

The *Fire Boss* must be aware of the "*span-of-control principle*" when directing attack units. *Span-of-control* management can be achieved several ways:

(a) GROUND ATTACK UNITS

Responsible *attack unit supervisors* can be delegated the authority and responsibility to supervise other ground attack units on a particular segment of the fire. In effect, they then become a *Sector Boss* on a *Sector* of the fireline and may or may not be replaced by incoming overhead. This would depend upon the requirements of the fire. The *Fire Boss* will be responsible for advising all units on the fire when these assignments occur.

(b) OVERHEAD PERSONNEL

Additional overhead personnel may be dispatched

FIRE CONTROL HANDBOOK

to fires to assist the *Fire Boss*. This request should be initiated by the *Fire Boss* based upon the number of attack units responding. The *Fire Boss* should consider ordering additional overhead when the fire response exceeds seven (7) ground attack units including *Airco*.

(c) TASK FORCE

Occasionally ground attack units are dispatched to fires as *Task Forces*. A *Task Force* may consist of any combination of ground attack units. However, it normally consists of five (5) engines with a *Task Force Leader*.

The *Fire Boss* should use the *Task Force Leader* as a *Sector* or *Division Boss* with his *Task Force* intact, if practical. This can be very helpful to the *Fire Boss* on a fast spreading fire where mobile attack is necessary and where protection of structures and other values is essential.

INITIAL ATTORNEY

.3 INITIAL ATTACK FIRE

a. DEFINITION

An *Initial Attack Fire* is one in which the fire is generally contained by the first dispatched attack units without a significant augmentation of reinforcements within two (2) hours after first attack action, and full control is expected within the *first burning period*.

b. FIRE ORGANIZATION STRUCTURE

Fire organization on *Initial Attack Fires* will consist of an informal organization structure. Once on the fire, the *Fire Boss* fulfills the *Command, Attack, Planning*, and *Finance* functions with the assistance of engine operators, dozer operators, hand crew supervisors, etc. Service is handled by the Ranger Unit *Emergency Command Center* under general supervision of the *Fire Boss*.

Figure 1 represents a "maximum effort" organ-

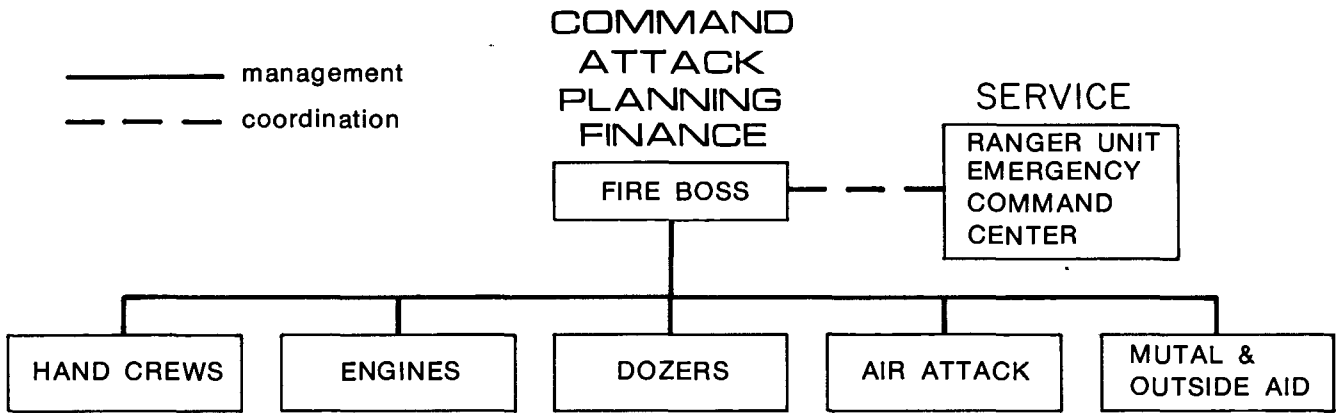


Figure 1. INITIAL ATTACK FIRE ORGANIZATION STRUCTURE. A "maximum effort" structure for both single and multiple fires.

ization structure which contains all positions expected to be required for the largest magnitude of an *Initial Attack Fire*. This structure should be tailored to the requirements of each fire. Thus, the number of positions or units may be greater or fewer than the number defined in the structure.

(1) FIRE BOSS CHECKLIST

On an *Initial Attack Fire*, the *Fire Boss* should:

- (a) Quickly and accurately size-up the fire problem:
 - enroute to the fire
 - at first sight of the fire
 - on arrival at the fire
 - constant re-evaluation during control of the fire.
- (b) Consider exposures and other values in path of fire.
- (c) Scout as much of the fire as possible
- (d) Consider intelligence from lookout or *Airco*
- (e) Provide the *Emergency Command Center* with a "952"
- (f) Evaluate the potential of the fire
- (g) Immediately assign the available attack units to the most logical plan of attack after size-up
- (h) Consider need for additional attack units
- (i) Coordinate the use of ground and air attack units
- (j) Be alert to changing weather and fire behavior conditions
- (k) Be located where the most effective *Command* can be provided to all attack units on the fire
- (l) Consider the safety of fire suppression personnel and citizens in the area
- (m) Have an alternate plan of attack

FIRE CONTROL HANDBOOK

- if the first plan fails
- (n) Constantly evaluate progress toward containment and control
- (o) Manage *span-of-control*
- (p) Plan for *Extended Attack or Major Fire* action and reorganization when the attack units at hand probably will not effect control.

c. MULTIPLE FIRES

(1) FIRE ORGANIZATION STRUCTURE

The *fire organization structure* in Figure 1 will also apply to a series of small fires caused by lightning, incendiarism, etc., where *Service* can be handled by the Ranger Unit *Emergency Command Center*. Each fire will have a *Fire Boss*. However, coordination of the *fire organization functions* between the multiple fires will be necessary.

(2) FUNCTIONAL COORDINATION

Functional coordination will be the responsibility of the *District Ranger* or the *Unit Operations Officer* depending on the scope of the fire problem and workload.

For example, a *District Ranger* would be responsible for functional coordination on a series of fires within his District where *attack unit supervisors* are assigned as *Fire Boss*. When these fires involve several Ranger Districts, then the *Unit Operations Officer* will be responsible for the overall coordination among the Districts.

ROBERTS ATTACK

.4 EXTENDED ATTACK FIRE

a. DEFINITION

An *Extended Attack Fire* is one in which the first dispatched attack units must be substantially augmented by additional ground and air attack units

COMMAND

— MANAGEMENT
- - - COORDINATION

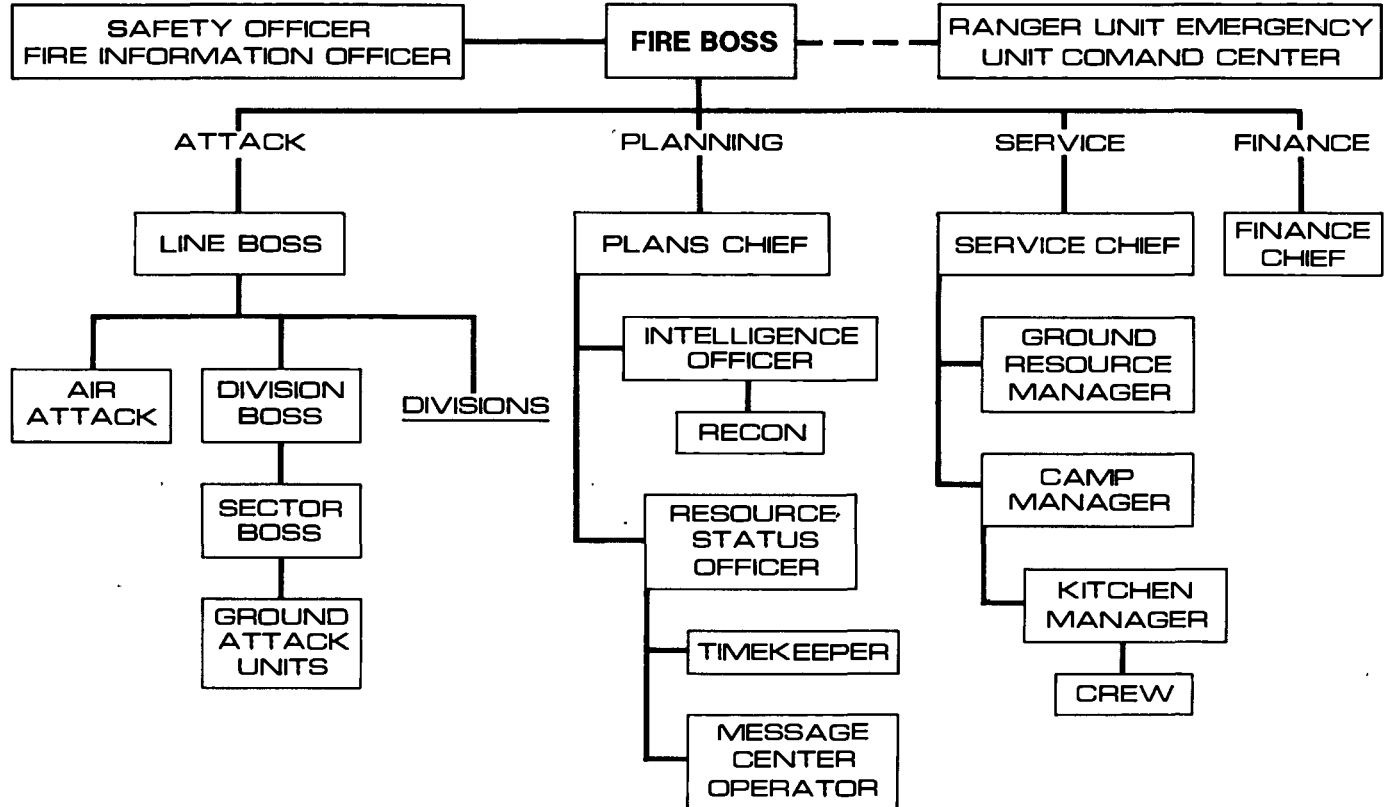


FIGURE 2. EXTENDED ATTACK FIRE ORGANIZATION STRUCTURE.
A "MAXIMUM EFFORT" STRUCTURE FOR A SINGLE FIRE.

FIRE CONTROL HANDBOOK

and is contained during the first burning period with full control expected during the second burning period. The only exception would be a small fire in heavy slash (i.e. Redwood) requiring several days for full control.

b. FIRE ORGANIZATION STRUCTURE

Fire organization on *Extended Attack Fires* may consist of either an informal or formal organization structure based upon the requirements of the fire. Some may have an organization structure similar to *Initial Attack* with expansion in one or more of the fire organization functions, and Service provided by the Ranger Unit *Emergency Command Center*. Others may require that a *Base Camp* be established with staffing of all the fire organization functions.

Figure 2 represents a "maximum effort" organization structure which contains all positions expected to be required for the largest magnitude of an *Extended Attack Fire*. This structure should be tailored to the requirements of each fire. Thus, the number of positions or units may be greater or fewer than the number defined in the structure.

(1) FIRE ORGANIZATION FUNCTIONS

The *Fire Boss* must begin to delegate authority and responsibilities for supervision of the fire organization functions. With *Divisions* of fireline activity, it will be necessary to designate a *Division Boss* for each. Depending upon the requirements of the fire, it may be necessary to designate a *Line Boss*. The *Line Boss* will be second in command to the *Fire Boss*.

If a *Falling Boss*, *Dozer Boss*, *Task Force Leader* or *Hand Crew Coordinator* is assigned to the fire, then the supervisory relationship in the *Attack* function presented in Figure 4 (page 40) will apply.

If a *Base Camp* is required, then a *Plans Chief* and a *Service Chief* should be promptly requested. It is vital these two individuals arrive within a

FIRE CONTROL HANDBOOK

reasonable period of time to begin managing their respective functions.

The *Fire Boss* should request a *Finance Chief* when the fiscal requirements of the fire warrant it. A *Finance Chief* should be requested on *Extended Attack Fires*:

- involving high suppression costs and a large number of financial documents to pay for hired personnel, equipment, supplies, etc.
- involving high suppression costs where BLM or some other agency will be reimbursing the State for a portion of these costs
- on *Joint Fires* where suppression costs are prorated between agencies.

The *Ranger Unit Emergency Command Center* will perform the duties of the *Communications Officer* until there is a need for this position to be assigned to the fire.

(2) FIRE BOSS CHECKLIST

On *Extended Attack Fires*, the *Fire Boss* should:

- (a) Consider exposures and other values in path of fire.
- (b) Continuously evaluate and observe fire behavior.
- (c) Be located where the most effective *Command* can be provided to attack units on the fire.
- (d) Have an alternate plan of attack if the current plan fails.
- (e) Request additional ground and air attack units needed to cope with the existing and anticipated fire problem.
- *(f) Coordinate the suppression activities of ground and air attack units.
- *(g) Anticipate the arrival of additional attack units and plan their assignment.

- (h) See that Service requirements for personnel and equipment are provided
- (i) Arrange for night shift
- (j) Plan for reserve standby forces
- (k) Maintain a record of personnel and equipment on the fire
- (l) Constantly evaluate progress toward control
- (m) Manage *span-of-control*
- (n) Plan for *Major Fire* actions and reorganization when it is anticipated that the forces at hand probably can not effect control.

* Supervision of these duties will be handled by the *Line Boss* if he is designated for the fire.

c. MULTIPLE FIRES

(1) FIRE ORGANIZATION STRUCTURE

Numerous lightning, incendiary, etc., fires often occur in a Ranger Unit, and one or more *Base Camps* may be established to provide *Command, Planning, Service* and *Finance* functions for support of the ground and air attack units. Each *Base Camp* will support fire control operations within a geographical area. The *Command, Planning, Service* and *Finance* functions will be essentially identical to the *Extended Attack Fire Organization Structure* in Figure 2. However, the *Attack* function will require modification.

Figure 3 represents the necessary modification of the *Attack* function for multiple fires.

(a) AIR ATTACK

The Ranger Unit *Emergency Command Center* will be responsible for initiating air attack coordination when two or more *Airco's* are being used within the Unit.

Each *Airco* will be assigned a geographical area. He will coordinate air attack activity with ground attack units under supervision of the *Line Boss*.

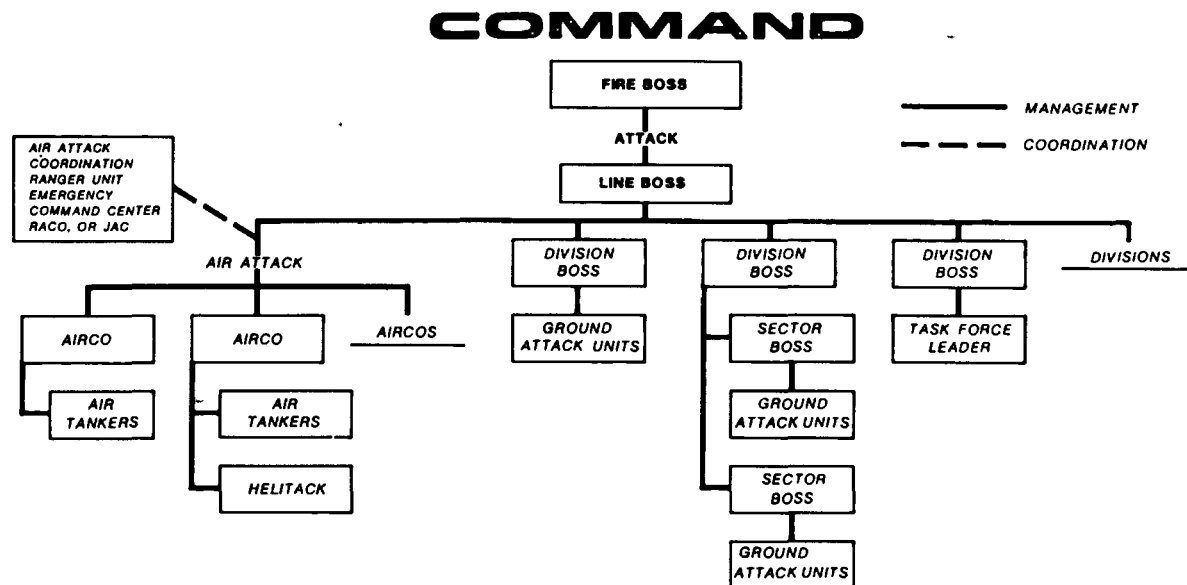


FIGURE 3. EXTENDED ATTACK FIRE ORGANIZATION STRUCTURE.
 A MODIFICATION OF THE ATTACK FUNCTION FOR MULTIPLE FIRES. DIVISION
 BOSSES WILL BE ASSIGNED A SINGLE FIRE OR A GEOGRAPHICAL AREA WITH
 SEVERAL FIRES BASED UPON WORKLOAD.

MAJOR FIRE

FIRE CONTROL HANDBOOK

The Regional *Emergency Command Center* will be responsible for initiating *Regional Air Coordination (RACO)* when the fires involve two or more Ranger Unit and *Joint Air Coordination (JAC)* when coordination is necessary between the CDF and USFS, or some other fire protection agency.

(b) GROUND ATTACK

Division Bosses may be assigned a single fire or geographical areas that include several fires. The size of the geographical area will be influenced by workload. *Division Bosses* may supervise individual ground attack units or *Sector Bosses*.

The *Line Boss* will be responsible for coordinating the activities of air and ground attack units in all geographical areas.

(2) FUNCTIONAL COORDINATION

When two (2) or more *Base Camps* are established, coordination of the *fire organization functions* within the Ranger Unit will be the responsibility of the Unit *Operations Officer* or the *Ranger-in-Charge*.

.5 MAJOR FIRE

a. DEFINITION

A fire that is contained during the second or following burning periods and requires extensive forces for control. At least one *Base Camp* is established.

b. FIRE ORGANIZATION STRUCTURE

Fire organization on a *Major Fire* will be based upon the requirements of the fire.

Figure 4 represents a "maximum effort" structure which contains all positions expected to be required for the largest magnitude of a *Major Fire*. This structure should be tailored to the requirements of each fire. Thus, the number of positions or units may be greater or fewer than the number defined in the structure.

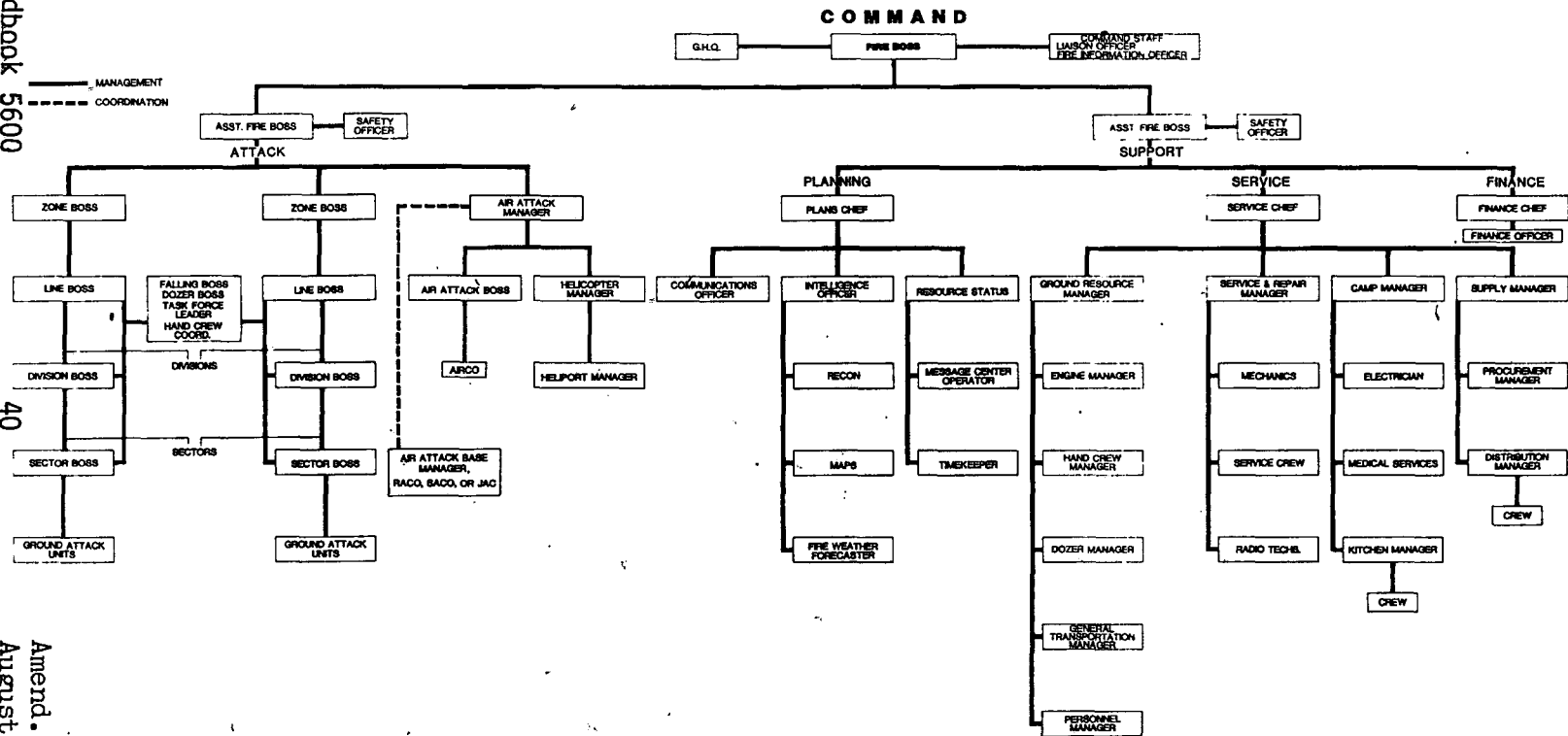


Figure 4 MAJOR FIRE ORGANIZATION STRUCTURE: A "Maximum Effort" Structure for Single and Multiple Fires.

(1) FIRE ORGANIZATION FUNCTIONS

Each of the *fire organization functions* will be properly staffed and operated as separate but integrated elements of the organization.

Figure 5 identifies the *Action Plan* working inter-relationships of the *Command, Attack, Planning, Service, and Finance* personnel, in the *fire organization structure*.

(a) COMMAND FUNCTION

(1) FIRE BOSS CHECKLIST

On *Major Fires*, the *Fire Boss* should:

- (a) Establish a fire control objective.
- (b) Consider exposures and values in path of fire.
- (c) Provide overall fire control strategy.
- (d) Provide management direction for the entire fire organization.
- (e) Coordinate the activities of all *fire organization functions*.
- (f) Confer with *Ranger-in-Charge GHQ, Command Staff, and Function Leaders* as required.
- (g) Demonstrate effective supervisory leadership of all functions.
- (h) Manage *span-of-control*.
- (i) See that effective communications are maintained within the fire organization.
- (j) Maintain a flexible fire organization adaptable to modification and change according to the requirements of the fire.

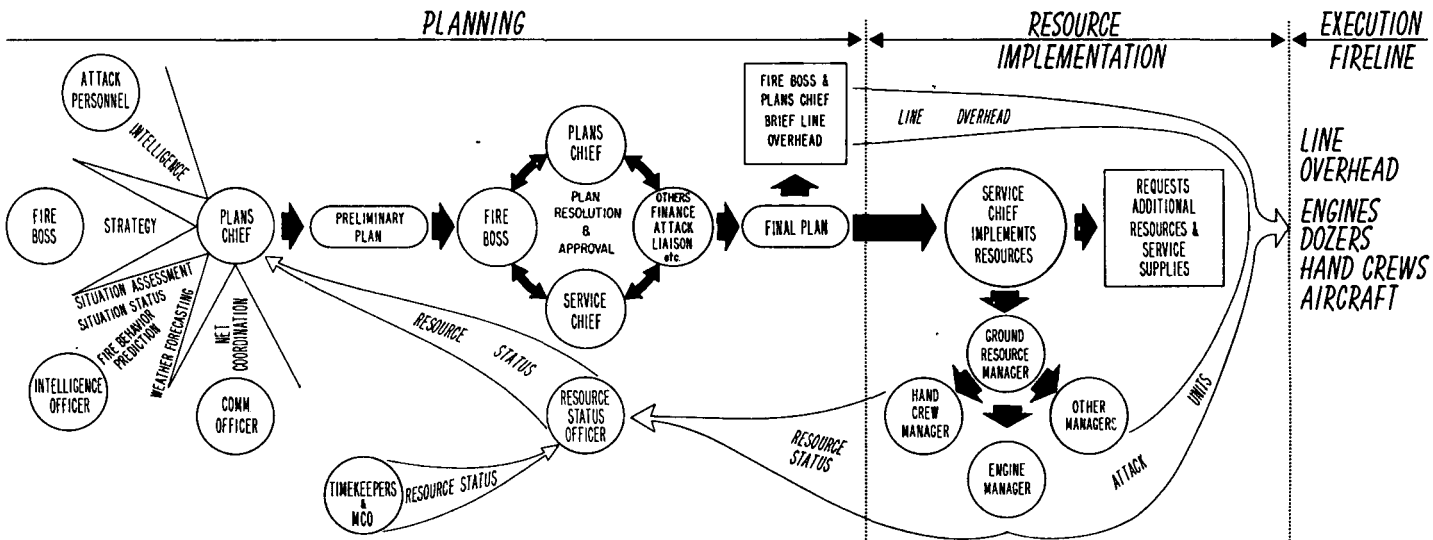


FIGURE 5. ACTION PLAN WORKING INTER RELATIONSHIPS OF THE FIRE ORGANIZATION FUNCTIONS

- (k) Constantly evaluate progress toward control.
- (l) See that additional ground and air attack units and other units and personnel in the fire organization are requested to cope with the existing and anticipated fire problem
- (m) Approve the final *Action Plan*.
- (n) Have an alternate plan of attack.
- (o) Keep current on fire situation status.
- (p) See that briefings are conducted properly and on time.

(2) ZONES

Topography, fire size, remoteness of certain areas, and the complexities of managing and servicing a large organization will dictate the need for establishing *Zones* with a *Zone Boss* in charge of each. When *Zones* are established, management will be decentralized to permit localized strategy and tactics to be employed on each *Zone*.

Each *Zone* will have fire organization staffing and support facilities commensurate with its needs. The *Fire Boss* will remain as the overall strategist and will provide coordination of the *fire organization functions*.

Figure 6 is an example of a *Major Fire* divided into two *Zones* due to varying topography and access.

(b) ATTACK FUNCTION

(1) GROUND ATTACK

The *Falling Boss*, *Dozer Boss*, *Task Force Leader* and *Hand Crew Coordinator* will be supervised by either the *Line Boss*, *Division Boss* or *Sector Boss* depending

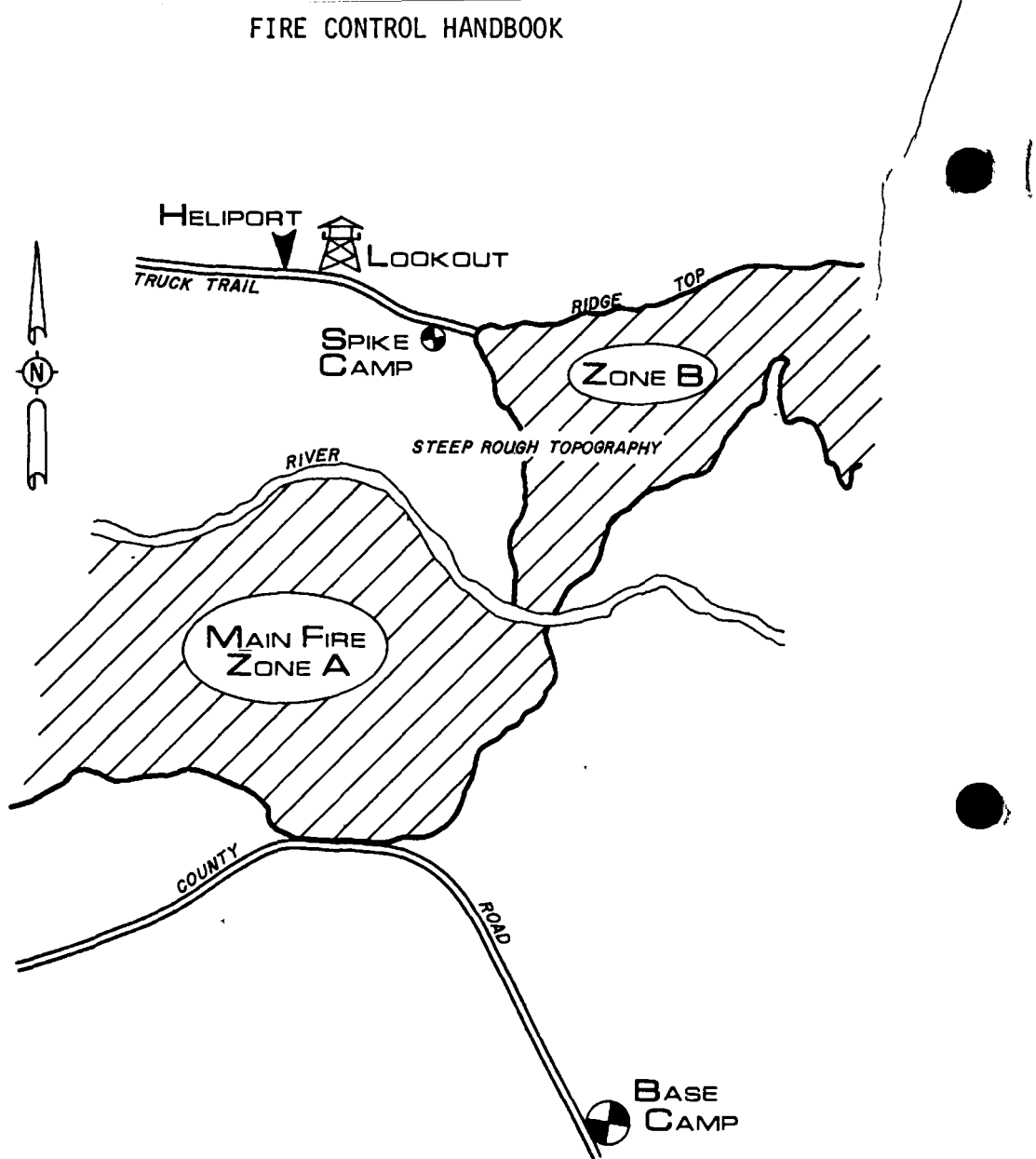


FIGURE 6. EXAMPLE OF ZONES

on whether their assignments are totally within a *Sector* or *Division* or transcend *Sector* and *Division* boundaries. The only exception will be the *Hand Crew Coordinator* who may not be directly involved with the *Attack* function. In this case, he will report to the *Service* function.

(2) AIR ATTACK

An *Air Attack Boss* will be designated to coordinate the use of all air attack units. This will include both airtankers and helicopters. The *Airco* will control the movement of airtankers in flight over the fire area and the tactical use of helicopters on the fire line.

(c) SERVICE FUNCTION

Major Fires invariably require large numbers of personnel and equipment for control. A substantial *Service* function will be necessary to support them. This support can be handled through a *Base Camp*, *Spike Camp* or *Staging Area* as needed. The *Service Chief* will be responsible for establishing adequate support facilities for the entire fire organization.

c. MULTIPLE FIRES

(1) FIRE ORGANIZATION STRUCTURE

The *fire organization structure* in Figure 4 will apply to each *Major Fire* that occurs. However, a high degree of functional coordination between the fires will be necessary.

(2) FUNCTIONAL COORDINATION

The *Ranger-in-Charge* will be responsible for coordination of the *fire organization functions* among *Major Fires* occurring within his *Ranger Unit*.

(3) AIR ATTACK COORDINATION

Coordination of air attack among *Major Fires* will be handled by *Regional Air Coordination (RACO)* or *Joint Air Coordination (JAC)* depending upon the location of the *Major Fire/Fires* and whether two or more fire protection agencies are involved.

.6 JOINT FIRES

a. DEFINITION

Joint Fires are those burning on wildlands which are the direct protection responsibility of another fire protection agency in addition to those of the CDF. Each agency must assume fire control responsibility for that portion of the fire burning on its area of direct protection.

(b) FIRE ORGANIZATION STRUCTURE

The *fire organization structures* for *Extended Attack* and *Major Fires* in Figures 2 and 4 will apply to *Joint Fires* in which the CDF is involved. These structures will be tailored to the requirements of each fire. Thus, the number of positions or units may be greater or fewer than the number defined in the structures.

Figures 7 and 8 give examples of *Joint Fires* for *Extended Attack* and *Major Fires*. The *Fire Boss* for each agency will direct the activities of his respective fire organization.

(1) JOINT FIRE ORGANIZATION FUNCTIONS

The *fire organization functions* of each agency on a *Joint Fire* will require a high degree of coordination to effectively control the fire. It will be necessary for each of the CDF *Function Leaders* to work closely with the respective *Function Leaders* in the other agency.

On *Extended Attack* and *Major Fires* it is recommended that a common interagency *Base Camp* be established, if practical. This will enable each agency's respective *Function Leaders* and *Command*

JOINT COMMAND

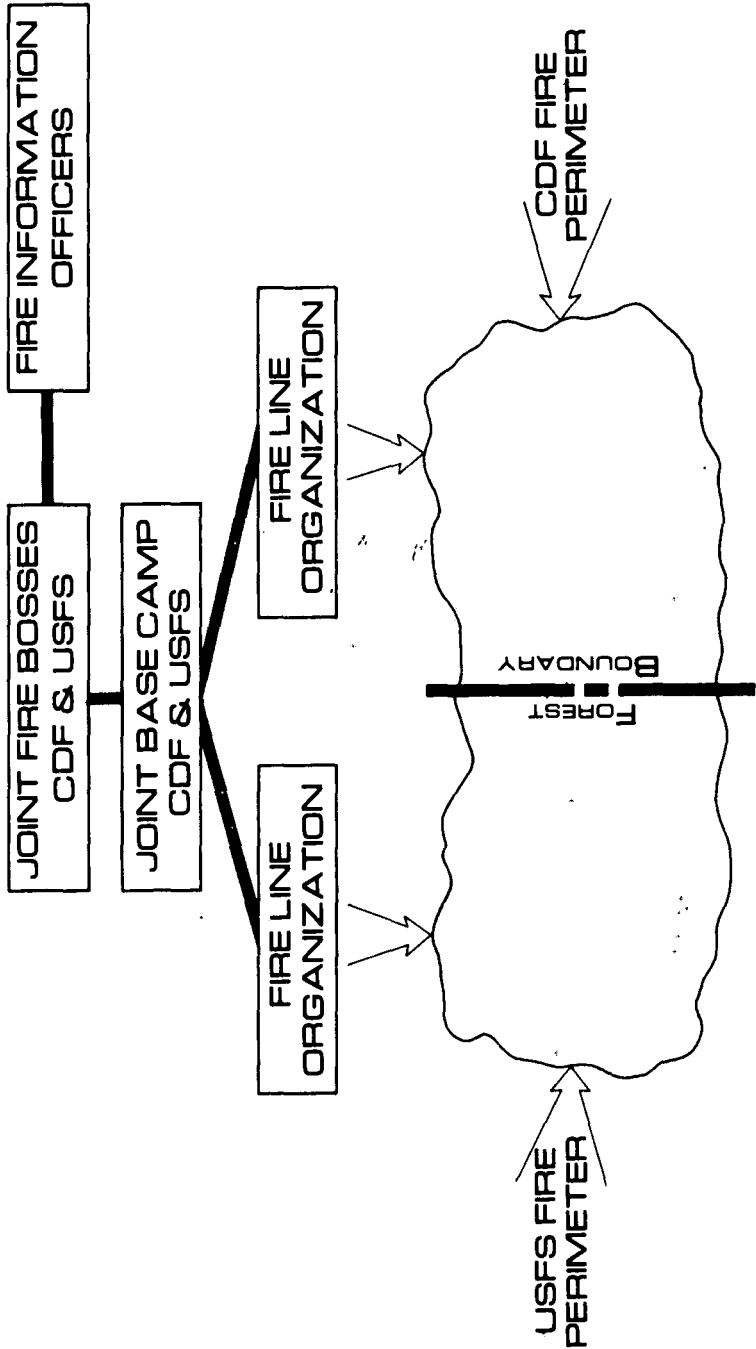


FIGURE 7. JOINT FIRE. EXTENDED ATTACK

JOINT COMMAND

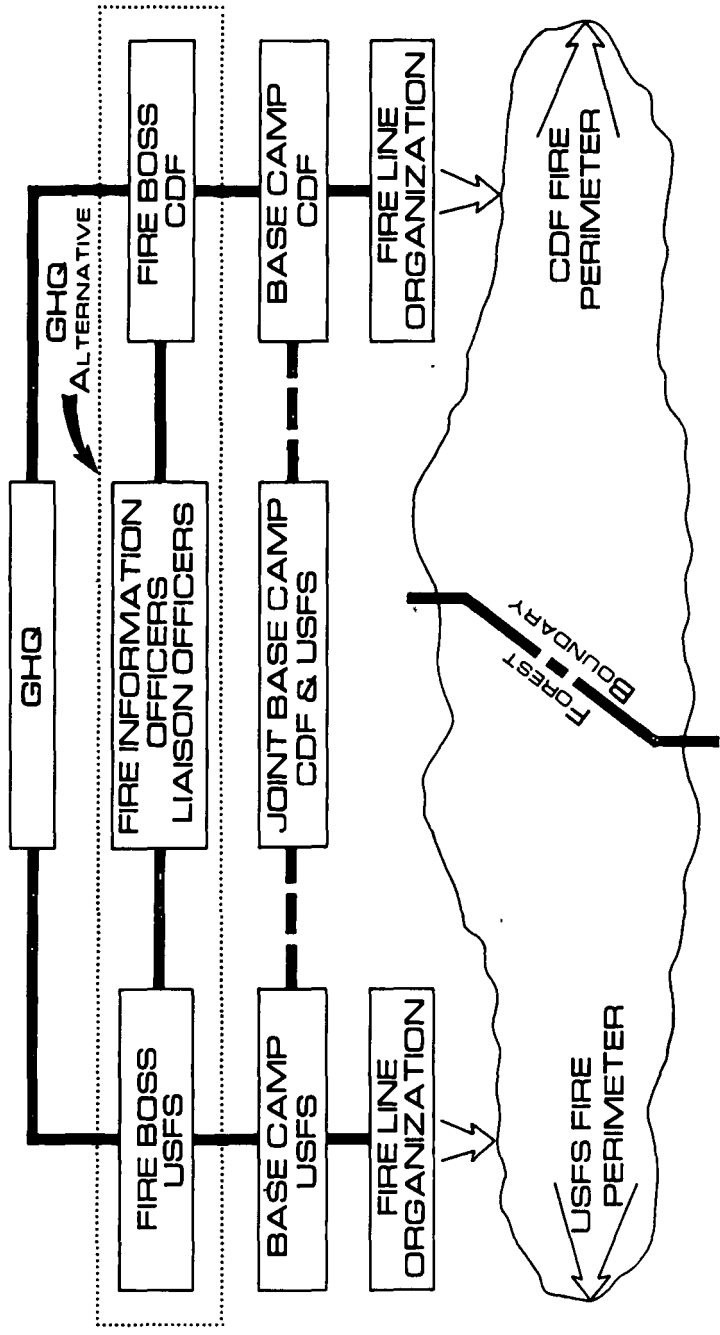


FIGURE 8. JOINT FIRE. MAJOR FIRE.

Staffs to work closely with their counterparts.

If separate *Base Camps* are necessary to support the suppression forces of each agency, then it is recommended the *Command, Planning, Service and Finance* functions of each agency be co-located in one of the *Base Camps*.

The CDF's *Fire Boss* and the other agency's *Fire Boss* will work together to formulate strategy and coordinate the *fire organization functions*.

Natural "action zones", which may include portions of each agency's direct protection area, will be mutually agreed upon and delineated for the purpose of sharing the *Attack* function. The point which the respective agency *Attack* functions are divided may be the Forest Boundary, Pay Boundary, or some natural barrier, i.e., stream, road, ridge, etc.

.7 OTHER AGENCY FIRE - CDF ASSISTANCE

Occasionally another agency requests assistance from the CDF for fire control, flood, oil slick, snow removal, etc. However, this is usually a request for ground attack units to aid the other agency in fire control where CDF has no direct protection responsibility.

a. FIRE ORGANIZATION STRUCTURE

The other agency establishes a *fire organization structure* for the fire. In each case, the CDF will send a qualified *CDF Liaison Officer* with the ground attack units.

Figure 9 represents a "maximum effort" structure which contains all positions expected to be required by the CDF for the largest magnitude fire. This organization structure would apply to "in-camp" only and not to fireline operations.

This structure should be tailored to the requirements of each fire. Thus, the number of positions or units may be greater or fewer than the number defined in the structure.

The structure may require modification when other types of ground attack units are requested or for emergencies other than fire.

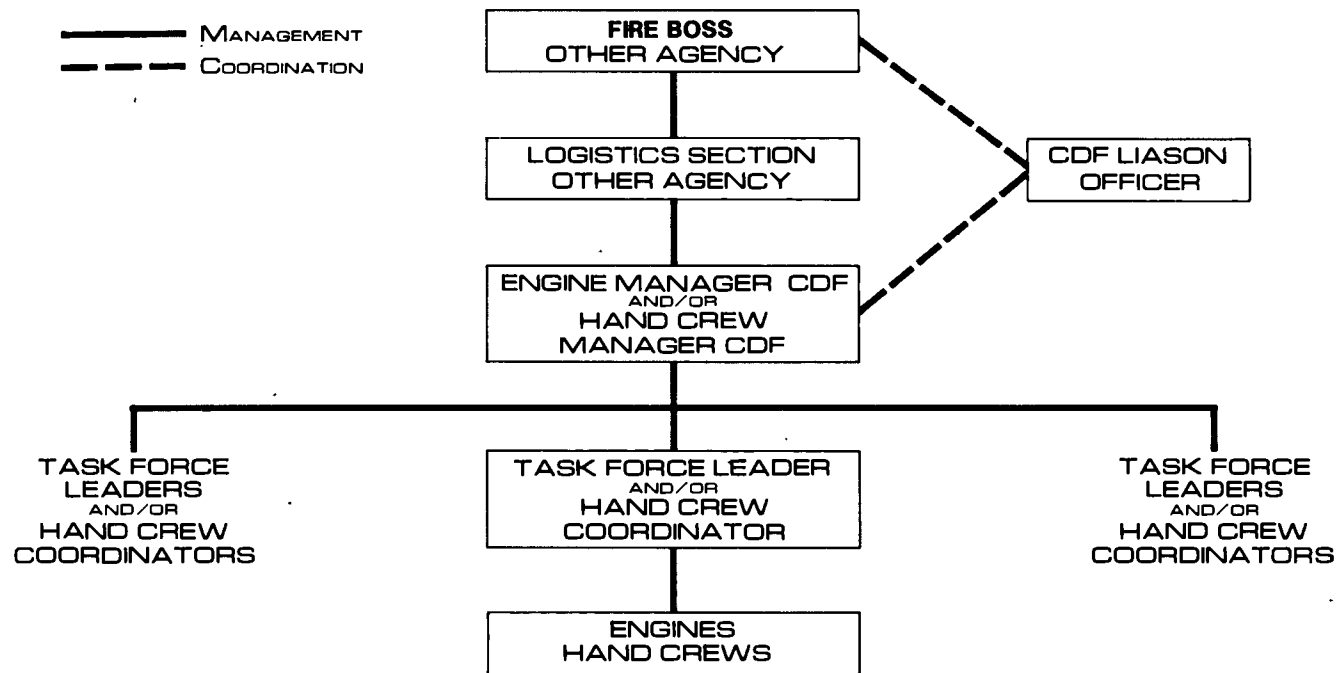


FIGURE 9. OTHER AGENCY FIRE-CDF ASSISTANCE. AN "IN-CAMP" ORGANIZATION STRUCTURE.

FIRE CONTROL HANDBOOK

.8 FIREScope

a. GENERAL

The *FIREScope* (Firefighting Resources of Southern California Organized for Potential Emergencies) Program is intended to provide more efficient allocation and utilization of firefighting forces. It includes a Multi-Agency Coordination System (MACS) and Incident Command System (ICS) designed to improve the capabilities of fire protection agencies. Partner agencies in the program design are the U.S. Forest Service, CDF, Office of Emergency Service, Los Angeles County, Los Angeles City Fire Department, Ventura and Santa Barbara County Fire Departments.

b. INCIDENT COMMAND SYSTEM

The Incident Command System (ICS) is designed to be the day-to-day emergency incident management system for participating agencies. CDF Region VI has been operating in the system since the 1978 fire season.

Fire season 1983 has been set as the target date for statewide implementation by the CDF.

ICS consists of the personnel, facilities, equipment, communications and procedures operating within a common organizational structure to accomplish stated objectives pertaining to an incident. The system begins to develop from the time that an incident occurs until the requirement for management and operations no longer exists. Only those specific functions needed on an incident will be activated.

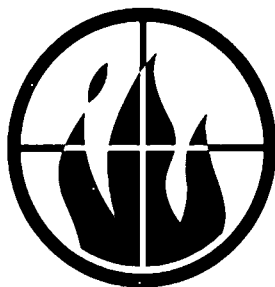
c. INCIDENT ORGANIZATION STRUCTURE

The "maximum effort" structure, which contains all functions expected for the largest magnitude of incident, is found in the Incident Command System Field Operations Guide, FP 420-1, pg. 1-2. (The complete guide should be inserted after this page.)



INCIDENT COMMAND SYSTEM FIELD OPERATIONS GUIDE

FP 420-1



FIRESCOPE PUBLICATION

JANUARY 4, 1980

TABLE OF CONTENTS

	<u>Page</u>
General Instructions	1-1
FIREScope Incident Organization.	1-2
Incident Command System Position Checklists	
Incident Commander	1-3
Command Staff.	1-3
Planning Section	1-5
Suppression and Rescue Section	1-13
Logistics Section.	1-23
Commonly Used Large Incident Positions	2-1
ICS Organization Guide and Personnel Requirements.	2-2
T Card Uses - ICS Forms.	3-1
Symbology for ICS Maps and Displays.	3-2
Information Flow Charts	
Resource Status Unit Functions and Interactions.	3-3
Situation Status Unit Function and Interactions.	3-4
Active S&R Resource Status Change Reporting.	3-5
Strike Team Leader Interactions.	3-6
Release of Active Suppression Resources.	3-7
Strike Team Composition.	4-1
Primary and Support Resources.	4-2
Communications	5-1
Glossary of Terms.	6-1
Agency Identifiers	7-1

Jan. 4, 1980

FP 420-1

GENERAL INSTRUCTIONS

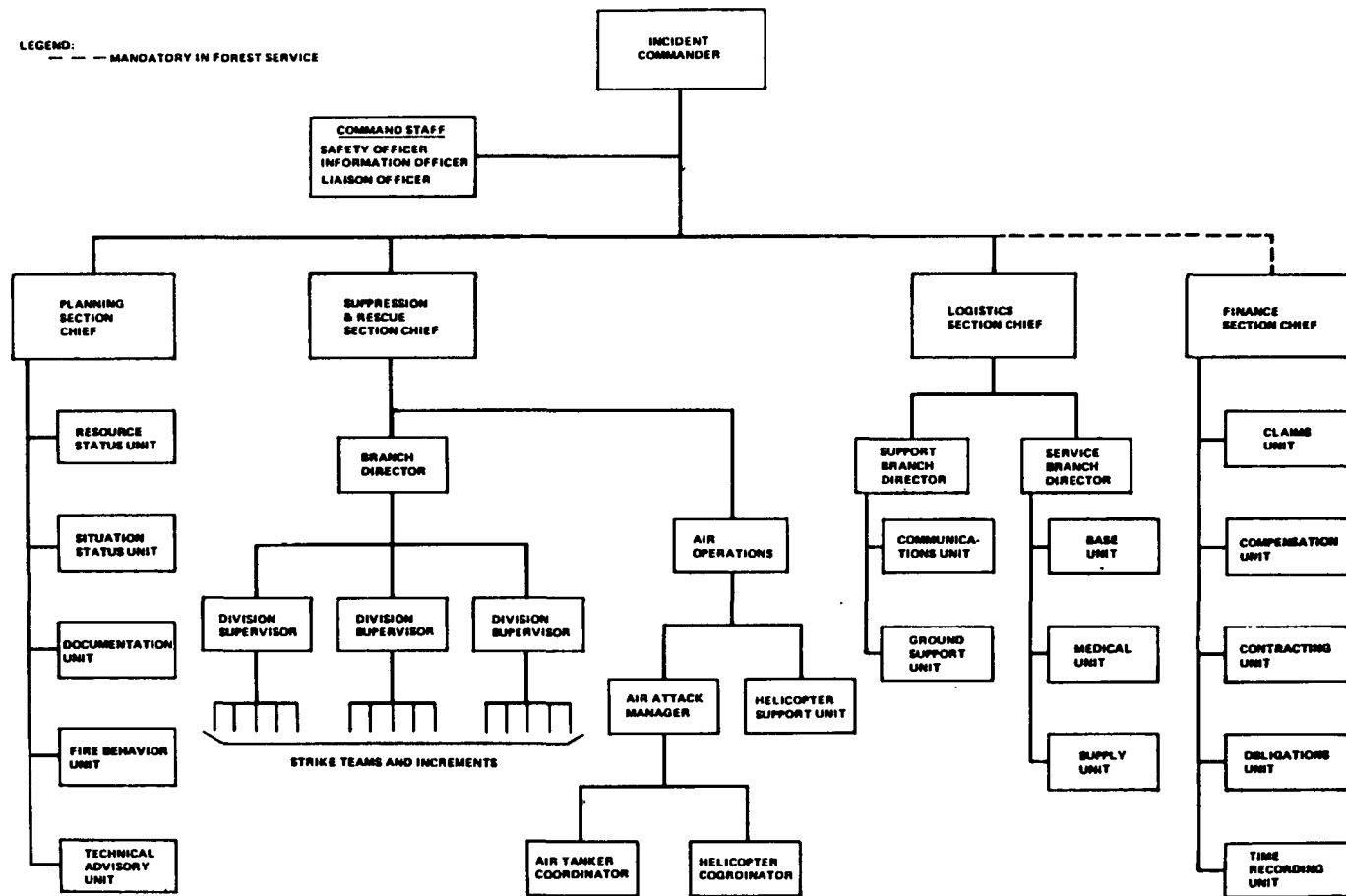
The following are general instructions applicable to all ICS personnel:

1. Receive your incident assignment, order no., reporting location, Strike Team No., and communications channel from your home agency dispatch center.
2. Upon arrival at the incident, Check-in at designated check-in locations. Check-in locations may be found at:

 Incident Command Post (RESTAT)
 Base or Camps
 Staging Areas
 Helibases
 Division supervisors (for active line assignments)
3. Agency representatives from Assisting or Cooperating agencies report to Liaison Officer at Incident Command Post after Checking in.
4. All radio Communications to Incident Communications center will be addressed: "(Incident Name) Communications" e.g., "Webb Communications".
5. Use Clear Text (no codes) and ICS terminology in all radio transmissions.
6. Receive briefing from immediate supervisor.
7. Acquire work materials.
8. Organize and brief subordinates.
9. Complete forms and reports required of the assigned position and send material through supervisor to Documentation Unit.
10. Respond to demobilization orders.
11. Brief subordinates regarding demobilization.
12. When released return to home agency or other assignment.

LEGEND:

--- MANDATORY IN FOREST SERVICE



1-2

Jan. 4, 1980

FP 420-1

C H E C K L I S T S

Jan. 4, 1980

FP 420-1

INCIDENT COMMANDER (FP 220-1) The Incident Commander is responsible for incident activities including the development and implementation of strategic decisions and for approving the ordering and releasing of resources.

- a. Obtain incident briefing and Incident Briefing Form (ICS Form 201) from prior Incident Commander.
- b. Access incident situation.
- c. Conduct initial briefing.
- d. Activate organization.
- e. Activate elements of the Incident Command System.
- f. Brief Command Staff and Section Chiefs.
- g. Conduct planning meetings.
- h. Approve and authorize implementation of Incident Action Plan (ICS Form 202).
- i. Determine information needs and inform command personnel of needs.
- j. Coordinate staff activity.
- k. Manage incident operations.
- l. Approve requests for additional resources and requests for release of resources.
- m. Approve the use of trainees on the incident.
- n. Authorize release of information to news media.
- o. Ensure Incident Status Summary (ICS Form 209) is completed and forwarded to Operations Coordination Center (OCC) and dispatch center(s).
- p. Approve plan for demobilization.

INFORMATION OFFICER (FP 220-2) The Information Officer, a member of the Command Staff, is responsible for the formulation and release of information about the incident to the news media and other appropriate agencies and organizations.

- a. Obtain briefing from the Incident Commander.
- b. Contact the jurisdictional fire suppression agency to coordinate public information activities.
- c. Establish incident information center.
- d. Prepare initial news release as soon as possible after arrival.
- e. Observe constraints on the release of information imposed by Incident Commander.
- f. Obtain approval for release from Incident Commander.
- g. Transmit news releases to news media and post information in Command Post and other appropriate locations.
- h. Attend meetings to update information releases.

COMMAND

- i. Arrange for meetings between media and incident personnel.
- j. Respond to special requests for information.
- k. Maintain Unit Log (ICS Form 214).

LIAISON OFFICER (FP 220-3) The Liaison Officer of the jurisdictional agency, a member of the Command Staff, is responsible for being the point of contact for the assisting and cooperating agency representatives. This includes agency representatives from other fire agencies, OES, Red Cross, law enforcement, and public works and engineering organizations.

- a. Obtain briefing from Incident Commander.
- b. Provide a point of contact for assisting/cooperating agency representatives.
- c. Identify agency representatives from each agency including communications link and location.
- d. Respond to requests from incident personnel for inter-organizational contacts.
- e. Monitor incident operations to identify current or potential inter-organizational problems.
- f. Maintain Unit Log (ICS Form 214).

SAFETY OFFICER (FP 220-4) The Safety Officer, a member of the Command Staff, is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although the Officer may exercise emergency authority, to stop or prevent unsafe acts when immediate action is required. The Officer maintains awareness of active and developing situations, approves the Medical Plan, and includes safety messages in each Incident Action Plan.

- a. Obtain briefing from Incident Commander.
- b. Identify hazardous situations associated with the incident.
- c. Participate in planning meetings.
- d. Review Incident Action Plans.
- e. Identify potentially unsafe situations.
- f. Exercise emergency authority to stop and prevent unsafe acts.
- g. Investigate accidents that have occurred within incident areas.
- h. Review and approve Medical Plan (ICS Form 206).
- i. Maintain Unit Log (ICS Form 214).

COMMAND

Jan. 4, 1980

FP 420-1

PLANNING SECTION

PLANNING SECTION CHIEF (FP 221-1) The Planning Section Chief, a member of the Incident Commander's General Staff, is responsible for the collection, evaluation, dissemination and use of information about the development of the incident and status of resources. Information is needed to 1) understand the current situation, 2) predict probable course of incident events, and 3) prepare alternative strategies and control operations for the incident.

- a. Obtain briefing from Incident Commander.
- b. Activate Planning Section units.
- c. Reassign initial attack personnel to incident positions as appropriate.
- d. Establish information requirements and reporting schedules for all ICS organizational elements for use in preparing Incident Action Plan and attachments.
- e. Notify RESTAT Unit of Planning Section units activated including names and locations of assigned personnel.
- f. Supervise preparation of Incident Action Plan (See Planning Process checklist.)
- g. Assemble information on alternative strategies.
- h. Assemble and disassemble strike teams not assigned to S&R.
- i. Identify need for use of specialized resource(s).
- j. Perform operational planning for Planning Section.
- k. Provide periodic predictions on incident potential utilizing infrared capabilities if available.
- l. Compile and display incident status summary information.
- m. Advise General Staff of any significant changes in incident status.
- n. Provide incident traffic plan.
- o. Supervise Planning Section units.
- p. Prepare and distribute Incident Commander's orders.
- q. Instruct Planning Section units in distribution of incident information.

PLANS

Jan. 4, 1980

FP 420-1

- r. Ensure that normal agency information collection and reporting requirements are being met.
- s. Prepare recommendations for release of resources to be submitted to Incident Commander.

PLANNING PROCESS

The checklist below provides basic steps appropriate for use in almost any incident situation. NOT ALL INCIDENTS REQUIRE WRITTEN PLANS. The need for written plans and attachments is based on Incident requirements and decision of the Incident Commander. The planning checklist is intended to be used with the ICS Planning Matrix board, and/or ICS Form 215 - S&R Operational Planning Worksheet. For more detailed instructions, see Chapter 3 of Planning Section Chief Position Manual FP 221-1.

CHECKLIST

- 1. BRIEF ON SITUATION AND RESOURCE STATUS
- 2. SET CONTROL OBJECTIVES
- 3. PLOT CONTROL LINES AND DIVISION BOUNDARIES ON MAP
- 4. SPECIFY TACTICS FOR EACH DIVISION
- 5. SPECIFY RESOURCES NEEDED BY DIVISION
- 6. SPECIFY S&R FACILITIES AND REPORTING LOCATIONS -
PLOT ON MAP
- 7. PLACE RESOURCE AND PERSONNEL ORDER
- 8. CONSIDER COMMUNICATIONS, MEDICAL AND TRAFFIC
PLAN REQUIREMENTS
- 9. FINALIZE AND IMPLEMENT INCIDENT ACTION PLAN

PLANS

Jan. 4, 1980

FP 420-1

SITUATION STATUS UNIT (FP 221-2) The Situation Status Unit, a member of the Planning Section, is responsible for the collection and organization of incident status and situation information and the evaluation, analysis, and display of that information for use by ICS personnel, agency dispatchers, and the Operations Coordination Center (OCC).

- a. Report to and receive briefing and special instructions from person in charge of planning activities when you arrive.
- b. Prepare and maintain Command Post display.
- c. Assign duties to Situation Status (SITSTAT) Unit personnel.
- d. Confirm dispatch and estimated time of arrival of ordered SITSTAT Unit personnel and request additional personnel, or release excess personnel.
- e. Collect incident data at earliest possible opportunity and continue for duration of incident.
- f. Obtain and analyze infrared data as applicable.
- g. Post data on unit work displays and Command Post displays at scheduled intervals or as requested by Command Post personnel.
- h. Participate in incident planning meetings as required by the Incident Commander.
- i. Prepare the Incident Status Summary form (ICS Form 209) before each planning meeting.
- j. Prepare traffic plan for routing traffic external and internal to the incident for approval by the Planning Section Chief.
- k. Provide photographic services and maps.
- l. Provide resource and situations status information in response to specific requests.
- m. Maintain Situation Status Unit records (Unit Log, ICS Form 214).

PLANS

- n. Receive order to demobilize SITSTAT Unit.
- o. Dismantle SITSTAT Unit displays and place in storage.
- p. List expendable supplies that need replenishing and file with Supply Unit.

RESOURCE STATUS UNIT (FP 221-3) The Resource Status Unit is responsible for: 1) establishing all incident check-in activities; 2) the preparation and processing of resource status change information; 3) the preparation and maintenance of displays, charts, and lists which reflect the current status and location of suppression resources, transportation and support vehicles and personnel in personnel pool, and 4) to maintain a master check-in list of resources assigned to an incident.

- a. Report to and receive briefing and special instructions from person in charge of Planning Section.
- b. Establish check-in function at Incident Locations.
- c. Using the Incident Briefing (ICS Form 201), prepare and maintain the Command Post display (organization charge and resource allocation and deployment sections of display).
- d. Assign duties to Resource Status (RESTAT) Unit personnel.
- e. Confirm dispatch and estimated time of arrival of ordered RESTAT Unit personnel. (Request additional personnel, or release excess personnel.)
- f. Establish contacts with incident facilities by telephone or through Communications Center, and begin maintenance of resource status.
- g. Participate in Planning Section meetings as required by the Planning Section Chief.
- h. Develop, post, and maintain Incident Resource Status System of suppression resources (active, available and out-of-service resources).
- i. Develop, post, and maintain Resource Status System of transportation and support vehicles and personnel in the personnel pool.
- j. Maintain master roster of all resources checked in at the incident.
- k. Prepare Organization Assignment List (ICS Form 203) and Organization Chart (ICS Form 207).
- l. Prepare appropriate parts of Division Assignment Lists (ICS Form 204).

PLANS

- m. Prepare Unit Log (ICS Form 214).
- n. Provide Resource Summary Information to Situation Status Unit as requested.
- o. Receive order to demobilize Resource Status Unit.
- p. Dismantle and store RESTAT Unit displays.
- q. List expendable supplies that need replenishing and file with Supply Unit Leader.

FIRE BEHAVIOR PREDICTION UNIT (FP 221-4) The Fire Behavior Prediction Unit, a member of the Planning Section, is primarily responsible for establishing a weather data collection system, and to develop required fire behavior predictions based on fire history, fuel, weather, and topography information.

- a. Establish weather data requirements.
- b. Verify dispatch of weather officer (NOAA).
- c. Confirm that mobile weather station has arrived and is operational.
- d. Inform meteorologist of weather data requirements.
- e. Forward weather data to Planning Section Chief.
- f. Collect, review and compile fire history data.
- g. Collect, review and compile exposed fuel data.
- h. Collect, review and compile information about topography and fire barriers.
- i. Provide weather information and other pertinent information to SITSTAT Unit for inclusion in Incident Status Summary report (ICS Form 209).
- j. Review completed Incident Status Summary report and Incident Action Plan (ICS Form 202).
- k. Prepare fire behavior prediction information at periodic intervals or upon request and forward to Planning Section Chief.
- l. Maintain Unit Log (ICS Form 214).

TECHNICAL ADVISORY UNIT (FP 221-5) The Technical Advisory Unit is activated when advisors with special skills are needed to support incident operations. The number of advisors assigned to this unit will vary based upon the needs of the Incident Commander and Planning Section Chief.

This unit does not have a designated unit leader. When activated, advisors report directed to the Planning Section Chief.

PLANS

The checklists included in this manual pertain to the following advisory positions (additional advisors may be added):

1. Water Resources Advisor
2. Environmental Advisor
3. Resource Use Advisor
4. Training Advisor

WATER RESOURCES ADVISOR CHECKLIST

- a. Report to and receive briefing and special instructions from Planning Section Chief.
- b. Participate in the development of the Incident Action Plan (ICS Form 202) and review general control objectives including alternative strategies presently in effect.
- c. Collect and validate water resource information within the incident area.
- d. Prepare information on available water resources.
- e. Establish water requirements needed to support fire suppression actions.
- f. Compare incident control objectives as stated in the plan, with available water resources and report inadequacies or problems to Planning Section Chief.
- g. Participate in the preparation of Incident Action Plan when requested.
- h. Respond to requests for water information.
- i. Maintain Unit Log (ICS Form 214).
- j. Collect and transmit records and logs to Documentation Unit at the end of each operational period.

ENVIRONMENTAL ADVISOR CHECKLIST

- a. Report to and receive briefing and special instructions from Planning Section Chief.
- b. Participate in the development of the Incident Action Plan (ICS Form 202) and review the general control objectives including alternative strategies.
- c. Collect and validate environmental information within the incident area by reviewing pre-attack land use and management plans.

PLANS

- d. Determine environmental restrictions within the incident area.
- e. Develop suggested priorities for preservation of the environment.
- f. Provide environmental analysis information, as requested.
- g. Maintain Unit Log (ICS Form 214).
- h. Collect and transmit required records and logs to Documentation Unit at the end of each operational period.

RESOURCE USE ADVISOR CHECKLIST

- a. Report to and receive briefing from Planning Section Chief.
- b. Participate in the development of the Incident Action Plan (ICS Form 202) and review general control objectives including alternative strategies as requested.
- c. Collect information on incident resources as needed.
- d. Respond to requests for information about limitations and capabilities of resources.
- e. Maintain Unit Log (ICS Form 214).
- f. Collect and transmit records and logs to Documentation Unit at the end of each operational period.

TRAINING ADVISOR CHECKLIST

- a. Report to and receive briefing and special instructions from Planning Section Chief.
- b. Inform Planning Section Chief of planned use of trainees.
- c. Review trainee assignments and modify if appropriate.
- d. Coordinate the assignments of trainees to incident positions with RESTAT Unit.
- e. Brief trainees and trainers on training assignments and objectives.
- f. Coordinate use of unassigned trainees in personnel pool.
- g. Make follow-up contacts on the job to provide assistance and advice for trainees to meet training objectives as appropriate and with approval of unit leaders.
- h. Ensure trainees receive performance evaluation.
- i. Coordinate with head of ICS Evaluation Team on observed training needs within the ICS, if required.

PLANS

- j. Monitor operational procedures and evaluate training needs.
- k. Respond to requests for information concerning training activities.
- l. Maintain Unit Log (ICS Form 214).
- m. Transmit Training Advisor Unit records and logs to Documentation Unit at the end of each operational period.

DOCUMENTATION UNIT (FP 221-10) The Documentation Unit, a member of the Planning Section, is responsible for:

1) maintaining accurate and complete incident files;
2) providing duplication services to incident personnel;
and 3) pack and store incident files for legal, analytical and historical purposes.

- a. Establish work area.
- b. Organize files.
- c. Set up duplication service requests.
- d. Respond to duplication service requests.
- e. Establish incident files.
- f. Retain and file duplicate copies of official forms and reports.
- g. Accept and file reports and forms submitted to unit by incident organizations.
- h. Check on accuracy and completeness of records submitted for files.
- i. Correct errors or omissions by contacting appropriate organizations.
- j. Provide duplicates of forms and reports to authorized requestors.
- k. Prepare incident documentation for Planning Section Chief when requested.
- l. Maintain, retain and store incident files for after incident use.
- m. Maintain Unit Log.

PLANS

SUPPRESSION AND RESCUE SECTION

SUPPRESSION AND RESCUE SECTION CHIEF (FP 222-1) The Suppression and Rescue Section Chief, a member of the General Staff, is responsible for the management of all operations directly applicable to the primary mission-- that of fire suppression and rescue. The Chief activates and supervises suppression and rescue organization elements in accordance with the Incident Action Plan and directs its execution. The S&R Chief also directs the preparation of unit operational plans, requests or releases resources, makes expedient changes to the Incident Action Plan as necessary; and reports such to the Incident Commander.

- a. Obtain briefing from Incident Commander.
- b. Develop suppression and rescue portion of Incident Action Plan.
- c. Brief and assign suppression and rescue personnel in accordance with Incident Action Plan (ICS Form 202).
- d. Supervise suppression and rescue operations.
- e. Determine need and request additional resources.
- f. Review suggested list of resources to be released and initiate recommendation for release of resources.
- g. Assemble and disassemble strike teams assigned to Suppression and Rescue Section.
- h. Report information about special activities, events, and occurrences to Incident Commander.

BRANCH DIRECTOR (FP 222-2) The Branch Director, when activated, is under the direction of the Suppression and Rescue Chief, and is responsible for the implementation of the Incident Action Plan within the Branch. This includes the direction and execution of Branch planning for the assignment of resources within the Branch.

- a. Develop with subordinates alternatives for Branch control operations.

S & R

Jan. 4, 1980

FP 420-1

- b. Attend planning meetings at the request of Suppression and Rescue Chief.
- c. Review Division Assignments Lists (ICS Form 204) for Divisions within Branch and modify based on effectiveness of current operations.
- d. Assign specific work tasks to Division Supervisors.
- e. Resolve logistic problems reported by subordinates.
- f. Report to Suppression and Rescue Chief when Incident Action Plan (ICS Form 202) is to be modified; when additional resources are needed or surplus resources are available; when hazardous situations or significant events occur.
- g. Approve accident and medical reports (home agency forms) originating within the Branch.
- h. Maintain Unit Log (ICS Form 214).

DIVISION SUPERVISOR (FP 222-3) The Division Supervisor reports to the Suppression and Rescue Section Chief (or Branch Director when activated). The Supervisor is responsible for the implementation of the assigned portion of the Incident Action Plan, assignment of resources within the Division, and reporting on the progress of control operations and status of resources within the Division.

- a. Implement Incident Action Plan (ICS Form 202) for division.
- b. Provide Incident Action Plan to Strike Team Leaders, when available.
- c. Identify increments assigned to the Division.
- d. Review Division assignments and incident activities with subordinates and assign tasks.
- e. Ensure that Incident Communications and/or RESTAT is advised of all changes in Status of resources assigned to the Division.
- f. Coordinate activities with adjacent Divisions.
- g. Determine need for assistance on assigned tasks.
- h. Submit situation and resources status information to Branch Director or Suppression and Rescue Chief.
- i. Report special occurrences or events (e.g., accidents, sickness) to immediate supervisor.
- j. Resolve logistics problems within the Division.
- k. Participate in the development of Branch Plans for next operational period.
- l. Maintain Unit Log (ICS Form 214),

S & R

Jan. 4, 1980

FP 420-1

STRIKE TEAM LEADER (FP 222-4) The Strike Team Leader reports to a Division Supervisor and is responsible for performing tactical assignments assigned to the strike team. The Leader reports work progress, resources status, and other important information to a Division Supervisor, and maintains work records on assigned personnel.

- a. Review strike team assignments with subordinates and assign tasks.
- b. Monitor work progress and make changes when necessary.
- c. Coordinate activities with adjacent strike teams and increments.
- d. Submit situation and resource status information to Division Supervisor.
- e. Maintain Unit Log (ICS Form 214).

AIR OPERATIONS (FP 222-5) Air Operations, which is ground based, is primarily responsible for preparing the air operations input to the Incident Action Plan. The plan will reflect agency restrictions that have an impact on the operational capability or utilization of resources (e.g., night flying, hours per pilot). After the plan is approved, Air Operations is responsible for implementing its strategic aspects--those that relate to the overall incident strategy as opposed to those that pertain to tactical operations (specific target selection). Additionally, Air Operations is responsible for providing logistical support to helicopters operating on the incident and maintaining liaison with fixed-wing air bases. Specific tactical activities (target selection, suggested modifications to specific tactical actions in the Incident Action Plan) are normally performed by the Air Attack Manager working with ground and air suppression resources.

- a. Organize preliminary air operations.
- b. Request declaration (or cancellation) of restricted air space area, (Federal Air Regulation 91.91).
- c. Participate in preparation of the Incident Action Plan (ICS Form 202).
- d. Perform operational planning for air operations.

S & R

- e. Prepare and provide Air Operations Summary Worksheet (ICS Form 220) to Helicopter Support Unit and Fixed-Wing Support Unit(s).
- f. Determine coordination procedures for use by air organization with ground branches or divisions.
- g. Coordinate with appropriate Suppression and Rescue Section personnel.
- h. Supervise all Air Operations activities associated with the incident.
- i. Establish procedures for emergency reassignment of aircraft.
- j. Schedule approved flights of non-incident aircraft in the restricted air space area.
- k. Coordinate and schedule infrared aircraft flights.
- l. Maintain coordination with airbase (fixed-wing aircraft) supporting the incident.
- m. Coordinate with Operations Coordination Center (OCC) through normal channels on incident air operations activities.
- n. Inform the Air Attack Manager of the air traffic situation external to the incident.
- o. Consider requests for non-tactical use of incident aircraft.
- p. Resolve conflicts concerning non-incident aircraft.
- q. Coordinate with Federal Aviation Agency (FAA).
- r. Update air operations plans.
- s. Report to the Suppression and Rescue Chief on air operations activities.
- t. Report special incidents/accidents.
- u. Arrange for an accident investigation team when warranted.
- v. Maintain Unit Log (ICS Form 214),

AIR ATTACK MANAGER (FP 222-6). The Air Attack Manager is primarily responsible for the coordination of aircraft operations when fixed and/or rotary-wing aircraft are operating on an incident. These coordination activities are performed by the Air Attack Manager while airborne. The Air Attack Manager reports to Air Operations.

- a. Check-in and receive incident assignment (normally by radio).

S & R

Jan. 4, 1980

FP 420-1

- b. Determine what aircraft (air tankers and helicopters) are operating within area of assignment.
- c. Obtain briefing from Air Operations or Suppression and Rescue Section Chief.
- d. Manage air attack activities based upon Incident Action Plan (ICS Form 202).
- e. Establish and maintain communications with Air Operations, Air Tanker and Helicopter Coordinators, Helicopter Support Unit, and Fixed-Wing Support Unit(s).
- f. Coordinate approved flights of non-incident aircraft or non-tactical flights in restricted air space area.
- g. Obtain information about air traffic external to the incident.
- h. Receive reports of non-incident aircraft violating restricted air space area.
- i. Make tactical recommendations to approved ground contact (Suppression and Rescue Section Chief, Branch Director, or Division Supervisor).
- j. Inform Air Operations of tactical recommendations affecting the air operations portion of the Incident Action Plan.
- k. Report on air operations activities to Air Operations.
- l. Report on incidents/accidents.

HELICOPTER COORDINATOR (FP 222-7) The Helicopter Coordinator is primarily responsible for coordinating tactical or logistical helicopter mission(s) at the incident. The Helicopter Coordinator can be airborne or on the ground operating from a high vantage point. The Coordinator reports to the Air Attack Manager. Activation of this position is contingent upon the complexity of the incident and the number of helicopters assigned. There may be more than one Helicopter Coordinator assigned to an incident.

- a. Check-in and receive incident assignment (normally by radio).
- b. Obtain briefing from Air Operations/Air Attack Manager.

S & R

Jan. 4, 1980

FP 420-1

- c. Determine what aircraft (air tankers and helicopters) are operating within incident area of assignment.
- d. Survey assigned incident area to determine fire situation, aircraft hazards and other potential problems.
- e. Coordinate with Helicopter Support Unit Leader in establishing locations and takeoff and landing patterns for helibase(s) and helispot(s).
- f. Coordinate the use of assigned ground to air and air to air communications frequencies with the Air Attack Manager, Communications Unit, or local agency dispatch center.
- g. Ensure that all assigned helicopters know appropriate operating frequencies.
- h. Coordinate geographical areas for helicopter operations with Air Attack Manager and make assignments.
- i. Determine and implement air safety requirements and procedures.
- j. Ensure that approved night flying procedures are in operation.
- k. Receive assignments, and supervise assigned helicopters while airborne.
- l. Coordinate activities with Air Attack Manager, Air Tanker Coordinator, Helicopter Support Unit, and ground suppression and rescue personnel.
- m. Maintain continuous observation of assigned helicopter operating area and inform Air Attack Manager of overall fire conditions including spot fires, change in wind direction, aircraft malfunction or maintenance difficulties, and anything that may affect containment of the fire.
- n. Inform Air Attack Manager when mission is completed and reassign helicopter as directed.
- o. Request assistance or equipment as required.
- p. Report incidents or accidents to Air Operations immediately.
- q. Maintain records of activities.

S & R

Jan. 4, 1980

FP 420-1

AIR TANKER COORDINATOR (FP 222-8) The Air Tanker Coordinator is primarily responsible for coordinating assigned air tanker operations at the incident. The Coordinator, who is always airborne, reports to the Air Attack Manager. Activation of this position is contingent upon the need or upon complexity of the incident. There may be more than one Air Tanker Coordinator assigned to an incident.

- a. Check-in and receive incident assignment (normally by radio).
- b. Obtain briefing from Air Operations/ Air Attack Manager.
- c. Determine all aircraft including air tankers and helicopters operating within incident area of assignment.
- d. Survey incident area to determine fire situation, aircraft hazards and other potential problems.
- e. Coordinate the use of assigned ground to air and air to air communications frequencies with Air Attack Manager, Communications Unit or local agency dispatch center and establish air tanker air to air radio frequencies.
- f. Ensure air tankers know appropriate operating frequencies.
- g. Determine incident air tanker capabilities and limitations for specific assignments.
- h. Coordinate with Air Attack Manager and assign geographical areas for air tanker operations.
- i. Determine and implement air safety requirement procedures.
- j. Receive assignments, assign missions, schedule flights and supervise air tanker activities (holding patterns, altitudes).
- k. Coordinate activities with Air Attack Manager, Helicopter Coordinator, and ground suppression and rescue personnel.
- l. Maintain continuous observation of air tanker operating areas.
- m. Provide fire access information to ground resources, if necessary.

S & R

- n. Inform Air Attack Manager of overall fire conditions including spot fires, change in wind direction, aircraft malfunction or maintenance difficulties, and anything that may affect containment of the fire.
- o. Inform Air Attack Manager when mission is completed and reassign air tankers as directed.
- p. Request assistance or equipment as necessary.
- q. Report incidents or accidents to Air Operations immediately.
- r. Maintain records of activities.

HELICOPTER SUPPORT UNIT (FP 222-9) The Helicopter Support Unit is primarily responsible for supporting and managing helibase and helispot operations. This includes providing 1) fuel and other supplies, 2) maintenance and repair of helicopters, 3) retardant mixing and loading, 4) keeping records of helicopter activity, and 5) providing enforcement of safety regulations. These major functions are performed at helibases and helispots. Helicopters during landing and take-off and while on the ground are under the control of the Helicopter Support Unit's Helibase or Helispot Managers. The Helicopter Support Unit Leader reports to Air Operations.

Helicopter Support Unit Checklist

- a. Receive briefing from Air Operations or Suppression and Rescue Section Chief.
- b. Obtain copy of the Incident Action Plan (ICS Form 202) from Air Operations including Air Operations Summary Worksheet (ICS Form 220).
- c. Participate in Air Operations planning activities.
- d. Inform Air Operations of unit activities.
- e. Identify resources/supplies dispatched for Helicopter Support Unit..
- f. Request special air support items from appropriate sources thru Logistics Section.
- g. Identify helibase and helispot locations (from Incident Action Plan) or from suppression and rescue resources.

S & R

Jan. 4, 1980

FP 420-1

- h. Determine need for assignment of personnel and equipment at each helibase and helispot.
- i. Coordinate special requests for air logistics.
- j. Coordinate activities with Air Operations.
- k. Obtain assigned ground to air frequency for helibase operations from Communications Unit Leader or Communications Plan (ICS Form 205).
- l. Inform Air Operations of capability to provide night flying service.
- m. Ensure compliance with each agency's operations checklist for day and night operations.
- n. Ensure dust abatement procedures are implemented at helibases and helispots.
- o. Provide crash-rescue service for helibases and helispots.
- p. Maintain Unit Log (ICS Form 214).

Helibase Manager's Checklist

- a. Receive briefing from Helicopter Support Unit Leader.
- b. Obtain Incident Action Plan (ICS Form 202) including Air Operations Summary Worksheet (ICS Form 220).
- c. Participate in Helicopter Support Unit planning activities.
- d. Inform Helicopter Support Unit of helibase activities.
- e. Report to assigned helibase.
- f. Manage resources/supplies dispatched to helibase.
- g. Ensure helibase is posted and cordoned.
- h. Ensure air traffic control operations are in effect.
- i. Manage retardant mixing and loading operations.
- j. Ensure helicopter fueling, maintenance and repair services are provided.
- k. Supervise manifesting and loading of personnel and cargo.
- l. Ensure dust abatement techniques are provided and used at helibases and helispots.
- m. Ensure security is provided at each helibase and helispot.

S & R

Jan. 4, 1980

FP 420-1

- n. Ensure crash-rescue services are provided for the helibase.
- o. Request special air support items from Helicopter Support Unit Leader.
- p. Receive and respond to special requests for air logistics.
- q. Supervise personnel responsible to maintain agency records, reports of helicopter activities, and specific ICS forms...Unit Log (ICS Form 214) and Check-In List (ICS Form 211).
- r. Coordinate activities with Helicopter Support Unit Leader.
- s. Display organization and work schedule at each helibase, including helispot organization and assigned radio frequencies.

Helispot Manager's Checklist

- a. Receive briefing from Helibase Manager.
- b. Obtain Incident Action Plan (ICS Form 202) including Air Operations Summary Worksheet (ICS Form 220).
- c. Report to assigned helispot.
- d. Participate in Helicopter Support Unit planning.
- e. Coordinate activities with Helibase Manager.
- f. Inform Helibase Manager of helispot activities.
- g. Manage resources/supplies dispatched to helispot.
- h. Request special air support items from Helibase Manager.
- i. Ensure air traffic control operations are in effect.
- j. Ensure crash-rescue services are provided.
- k. Ensure dust abatement techniques are used.
- l. Supervise or perform retardant loading at helispot.
- m. Perform manifesting and loading of personnel and cargo.
- n. Maintain agency records, reports of helicopter activities and Unit Log (ICS Form 214).

S & R

LOGISTICS SECTION

LOGISTICS SECTION CHIEF (FP 223-1) The Logistics Section Chief, a member of the General Staff, is responsible for providing facilities, services, and material in support of the incident. The Section Chief participates in development and implementation of the Incident Action Plan and activates and supervises the Units and Branches within the Logistics Section.

- a. Receive briefing from Incident Commander.
- b. Plan organization of Logistics Section.
- c. Assign work locations and preliminary work tasks to Section personnel.
- d. Notify RESTAT Unit of Logistics Section units activated including names and locations of assigned personnel.
- e. Assemble and brief Branch Directors and Unit Leaders.
- f. Participate in preparation of Incident Action Plan.
- g. Identify service and support requirements for planned and expected operations.
- h. Provide inputs to and review of Communications Plan, Medical Plan and Traffic Plan.
- i. Coordinate and process requests for additional resources.
- j. Review Incident Action Plan and estimate Section needs for next operational period.
- k. Ensure Incident Communications Plan is prepared.
- l. Advise on current service and support capabilities.
- m. Prepare service and support elements of the Incident Action Plan.
- n. Estimate future service and support requirements.
- o. Receive demobilization plan from Planning Section.
- p. Recommend release of unit resources in conformity with demobilization plan.
- q. Ensure general welfare and safety of Logistics Section personnel.

LOGISTICS

Jan. 4, 1980

FP 420-1

SUPPORT BRANCH DIRECTOR (FF 223-2) The Support Branch Director, under the direction of the Logistics Section Chief, is responsible for development and implementation of logistics plans in support of the Incident Action Plan. The Branch Director supervises the operations of the Ground Support Unit and Communications Unit.

- a. Obtain work materials from Logistics Kit.
- b. Identify Support Branch personnel dispatched to the incident.
- c. Determine initial support operations in coordination with Logistics Section Chief and Service Branch Director.
- d. Prepare initial organization and assignments for initial support operations.
- e. Assemble and brief Support Branch personnel.
- f. Determine if assigned Branch resources are sufficient.
- g. Maintain surveillance of assigned units work progress and inform Section Chief of activities.
- h. Resolve problems associated with requests from S&R Section.
- i. Maintain Unit Log.

GROUND SUPPORT UNIT (FP 223-3) The Ground Support Unit, under the direction of the Logistics Section Chief, is primarily responsible for 1) administration and support of staging area operations, 2) transportation of personnel, supplies, food, and equipment, 3) fueling, service, maintenance, and repair of vehicles and other ground support equipment, and 4) implementing traffic plan for the incident.

- a. Participate in Support Branch/Logistics Section planning activities.
- b. Implement traffic plan development by Planning Section.
- c. Manage staging area operations.

LOGISTICS

- d. Arrange for and activate fueling, maintenance, and repair of ground resources.
- e. Maintain inventory of support and transportation vehicles.
- f. Provide transportation services.
- g. Collect use information on rented equipment.
- h. Requisition maintenance and repair supplies (e.g., fuel, spare parts).
- i. Maintain incident roads.
Submit reports to Support Branch Director as directed.
- j. Maintain Unit Log (ICS Form 214).

COMMUNICATIONS UNIT (FP 223-5) The Communications Unit, under the direction of the Support Branch Director or Logistics Section Chief, is responsible for developing plans for the effective use of incident communications equipment and facilities; installing and testing of communications equipment; supervision of the incident communications center; distribution of communications equipment to incident personnel; and the maintenance and repair of communications equipment.

- a. Obtain briefing from Support Branch Director or Logistics Section Chief.
- b. Determine unit personnel needs.
- c. Advise on communications capabilities/limitations during preparation of the Incident Action Plan.
- d. Prepare and implement the Incident Radio Communications Plan (ICS Form 205).
- e. Ensure the Incident Communications Center and Message Center are established,
- f. Set up telephone and public address systems.
- g. Establish appropriate communications distribution/maintenance locations within base/camp(s).
- h. Ensure Communications Systems are installed and tested.
- i. Ensure an equipment accountability system is established.

LOGISTICS

- j. Ensure personal portable radio equipment from cache is distributed per radio plan.
- k. Provide technical information as required on:
 - Adequacy of communications systems currently in operation
 - Geographic limitation on communications systems
 - Equipment capabilities
 - Amount and types of equipment available
 - Anticipated problems in the use of communications equipment
- l. Supervise Communications Unit activities.
- m. Maintain records on all communications equipment as appropriate.
- n. Ensure equipment is tested and repaired.
- o. Recover equipment from relieved or released units.
- p. Maintain Unit Log (ICS Form 241),

SERVICE BRANCH DIRECTOR (FP 223-6) The Service Branch Director, when activated, is under the supervision of the Logistics Section Chief, and is responsible for the management of all service activities at the incident.

- a. Obtain working materials from Logistics Kit.
- b. Determine level of service required to support operations.
- c. Confirm dispatch of Branch personnel.
- d. Participate in planning meetings of Logistics Section personnel
- e. Review Incident Action Plan (ICS Form 202).
- g. Organize and prepare assignments for Service Branch personnel.
- h. Coordinate activities of Branch Units.
- i. Inform Logistics Chief of Branch activities.
- j. Resolve Service Branch problems.
- k. Maintain Unit Log (ICS Form 214).

MEDICAL UNIT (FP 223-7) The Medical Unit, under the direction of the Service Branch Director or Logistics Section Chief, is primarily responsible for the development of the Medical Emergency Plan, obtaining medical aid and transportation for injured and ill incident personnel, and preparation of reports and records.

LOGISTICS

Jan. 4, 1980

FP 420-1

The Medical Unit may also assist suppression and rescue in supplying medical care and assistance to civilian casualties at the incident.

- a. Participate in Logistics Section/Service Branch planning activities.
- b. Determine level of emergency medical activities performed prior to activation of Medical Unit.
- c. Activate Medical Unit.
- d. Prepare the Medical Emergency Plan (ICS Form 206).
- e. Prepare procedures for major medical emergency.
- f. Declare major medical emergency.
- g. Respond to requests for medical aid.
- h. Respond to requests for medical transportation.
- i. Respond to requests for medical supplies.
- j. Prepare medical reports.
- k. Submit reports as directed.
- l. Maintain Unit Log (ICS Form 214).

BASE UNIT (FP 223-8) The Base Unit is primarily responsible for the activation of incident facilities, i.e., base, camp(s), and incident command post. The Unit provides feeding, sleeping and sanitation facilities for incident personnel and manages base and camp(s) operations. Each facility (base, camp) is assigned a manager who reports to the Base Unit Leader and is responsible for managing the operation of the facility. The basic functions or activities of the base and camp manager are to provide food services, security service, and facility maintenance. The Base Unit Leader reports to the Service Branch Director. Close liaison must be maintained with the Ground Support Unit Leader, who is responsible for the management of staging areas.

- a. Receive a copy of the Incident Action Plan (ICS Form 202).
- b. Participate in Logistics Section/Service Branch planning activities.
- c. Determine requirements for each facility to be established.
- d. Prepare layouts of incident facilities.
- e. Notify unit leaders of facility layout.
- f. Activate incident facilities.

LOGISTICS

Jan. 4, 1980

FP 420-1

- g. Obtain personnel to operate facilities.
- h. Operate food services.
- i. Provide sleeping facilities.
- j. Requisition and maintain inventory of food supplies.
- k. Provide security services.
- l. Provide facility maintenance services - sanitation, lighting, clean up.
- m. Demobilize base and camp facilities.
- n. Maintain Base Unit records.
- o. Maintain Unit Log (ICS Form 214).

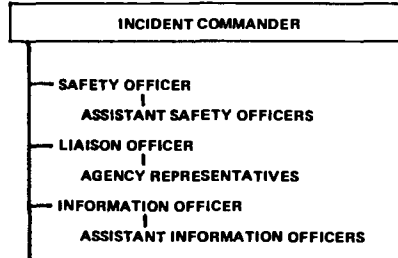
SUPPLY UNIT (FP 223-9) The Supply Unit is primarily responsible for ordering, receiving, and storing all supplies for the incident, maintaining an inventory of supplies, and servicing non-expendable supplies and equipment. The major functions of the Unit are grouped into tool operations, support operations, and recording operations. The Supply Unit Leader reports to the Service Branch Director.

- a. Participate in Logistics Section/Service Branch planning activities.
- b. Provide Planning, Logistics and Finance Sections Supply Kits to appropriate units.
- c. Determine the type and amount of supplies enroute.
- d. Arrange for receiving ordered supplies.
- e. Review Incident Action Plan (ICS Form 202) for information on operations of the Supply Unit.
- f. Develop and implement safety and security requirements.
- g. Order, receive, distribute, and store supplies and equipment.
- h. Receive and respond to requests for supplies and equipment.
- i. Maintain inventory of supplies and equipment.
- j. Service reusable equipment.
- k. Demobilize Supply Unit.
- l. Submit reports to the Service Branch Director.
- m. Maintain Unit Log (ICS Form 214).

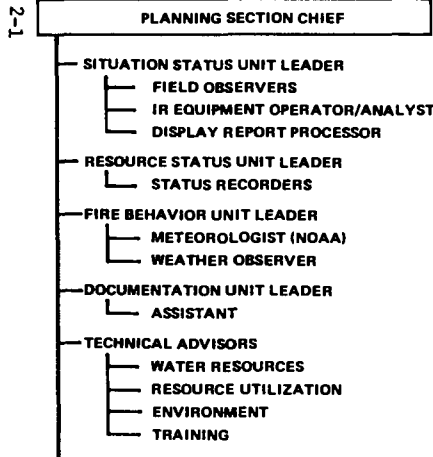
LOGISTICS

COMMONLY USED ICS POSITIONS

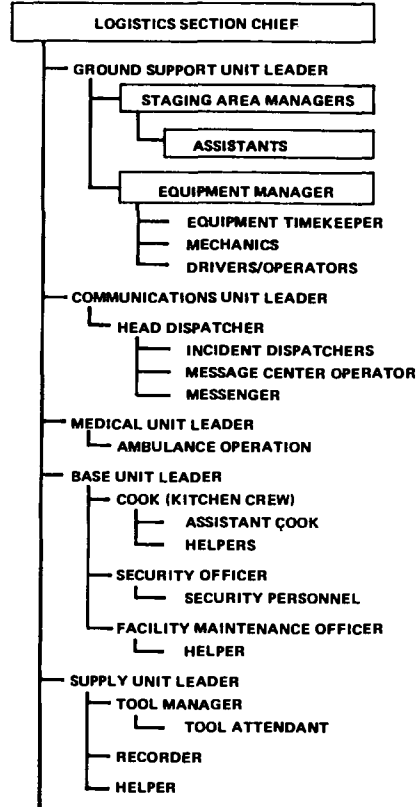
COMMAND STAFF



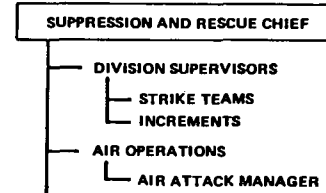
PLANNING SECTION



LOGISTICS



SUPPRESSION AND RESCUE SECTION



Jan. 4, 1980

FP 420-1

ICS ORGANIZATION GUIDE

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D
1. Incident Commander - one per incident. Unless incident is multi-jurisdiction.
 2. Multi-jurisdiction incidents establish Joint Command with each jurisdiction supplying individual to represent agency in Joint Command Structure.
 3. Incident Commander may have Deputy.
 4. Command Staff Officers - one per function per incident.
 5. Command Staff may have assistants as needed.
 6. Agency Representatives report to Liaison Officer on Command Staff.

RECOMMENDED MINIMUM PERSONNEL REQUIREMENTS
(PER TWELVE (12) HOUR/OPERATIONAL PERIOD)

UNIT POSITION		SIZE OF INCIDENT (# OF DIVISIONS)				
		2	5	10	15	25
P L A N N I N G	Planning Section Chief	One Per Incident				
	Situation Status Unit Leader	1	1	1	1	1
	Field Observer		1	2	2	3
	Field Data Analyst		1	1	1	2
	Aerial/Ortho Photo Analyst			1	1	1
	Display/Report Processor		1	1	1	2
	IR Analyst		1	1	1	2
	IR Equipment Operator (if Downlink is Used)		2	2	2	3
	Computer Terminal Operator		1	1	1	1
	Photographer			1	1	1
	Resource Status Unit Leader	1	1	1	1	1
	Recorder	1	2	3	3	3
	Fire Behavior Unit Leader		1	1	1	1
	Assistant Fire Unit Leader	As Needed				
	Meteorologist	As Needed				
	Weather Observer			2	2	3
	Water and Environmental Advisors	As Needed				
	Resource Use Advisor	As Needed				
	Training Advisor		1	1	1	1
	Documentation Unit Leader		1	1	1	1
	Assistant	As Needed				
S & R	Suppression & Rescue Section Chief	One Per Operational Period				
	Branch Director		2	3	4	6
	Division Supervisor	2	5	10	15	25
	Strike Team Leaders	As Needed				
	Increment Leaders	One Per Increment				
	Air Operations Director		1	1	1	1
	Air Attack Manager	1	1	1	1	1
	Air Tanker Coordinator	As Needed				
	Helicopter Coordinator	As Needed				
	Helicopter Support Unit Leader	1	1		1	1
	Helibase Manager	One Per Helibase				
	Helispot Manager	One Per Helispot				
	Fixed Wing Support Leader	One Per Airport				

Jan 4., 1980

FP 420-1

	UNIT POSITION	SIZE OF INCIDENT (# OF DIVISIONS)				
		2	5	10	15	25
L O G I S T I C S	Logistics Section Chief	One Per Incident				
	Support Branch Director	As Needed				
	Ground Support Unit Leader	1	1	1	1	1
	Staging Area Manager	One Per Staging Area				
	Assistant Staging Area Mgr.	As Needed				
	Equipment Manager	1	1	1	1	1
	Assistants	As Needed				
	Equipment Timekeeper	1	1	1	1	1
	Mechanics	1	1	3	5	7
	Drivers	As Needed				
	Operators	As Needed				
	Communications Unit Leader	1	1	1	1	1
	Head Dispatcher	1	1	1	1	1
	Incident Dispatcher	1	2	3	3	4
	Message Center Operator	1	1	1	2	2
	Messenger	1	2	2	2	2
	Communications Technician	1	2	4	4	4
	Service Branch Director	As Needed				
	Medical Unit Leader	1	1	1	1	1
	Medical Unit Leader Asst.	As Needed				
	Base Unit Leader	1	1	1	1	1
	Base/Camp Manager (Each Camp)	1	1	1	1	1
	Food Manager	As Needed				
	Cook	1	1	2	3	3
	Assistant Cook	2	2	4	6	6
	Helper	8	8	16	24	24
	Security Officer	1	1	1	1	1
	Facility Maintenance Officer (Each Camp)	1	1	1	1	1
	Helper (Each Camp)	6	6	12	12	12
	Supply Unit Leader (Each Camp)	1	1	1	1	1
	Base Supply Unit Asst. (Each Camp)			1	1	1
	Camp Supply Unit Asst. (Each Camp)			1	1	1
	Tool Manager	1	2	2	3	3
	Tool Attendant	2	2	2	2	2
	Recorder	1	1	2	2	2
	Helper	2	2	2	2	2
* F I N A N C E	Finance Section Chief	One Per Incident				
	Time Recording Unit Leader	1	1	1	1	1
	Time Recorder, Personnel	1	3	3	5	5
	Time Recorder, Equipment	1	2	2	3	3
	Commissary Manager	As Needed				
	Compensation Unit Leader		1	1	1	1
	Contracting Unit Leader		1	1	1	1
E	Claims Unit Leader		1	1	1	1
	Obligations Unit Leader		1	1	1	1
*Applicable to USFS/CDF Incidents						

T-CARD COLORS AND USES

Eight different color resource cards (T-cards) are used to denote single increments and strike teams. The card colors and resources they represent are:

1. Rose - engines
2. Yellow - bulldozers
3. Green - crews
4. Blue - helicopters
5. Orange - aircraft
6. Tan - miscellaneous resource (support and transportation vehicles, and incident formed task forces).
7. White - overhead personnel and personnel pool.
8. Gray - resource location or assignment (not a resource).

INCIDENT COMMAND SYSTEM FORMS

Forms and records which are routinely used in the ICS are listed below.

Incident Briefing	ICS Form 201
Incident Action Plan	ICS Form 202
Organization Assignment List	ICS Form 203
Division Assignment List	ICS Form 204
Incident Radio Communications Plan	ICS Form 205
Medical Plan	ICS Form 206
Incident Organization Chart	ICS Form 207
Incident Status Summary	ICS Form 209
Status Change Card	ICS Form 210
Check-In List	ICS Form 211
Personnel Pool Inventory	ICS Form 212
General Message	ICS Form 213
Unit Log	ICS Form 214
S&R Operational Planning Worksheet	ICS Form 215
Radio Requirements Worksheet	ICS Form 216
Radio Frequency Assignment Worksheet	ICS Form 217
Support Vehicle Inventory	ICS Form 218
Resource Status Card	ICS Form 219
Air Operations Summary Worksheet	ICS Form 220

ICS MAP DISPLAY SYMBOLOGY

Jan 4, 1980

FP 420-1

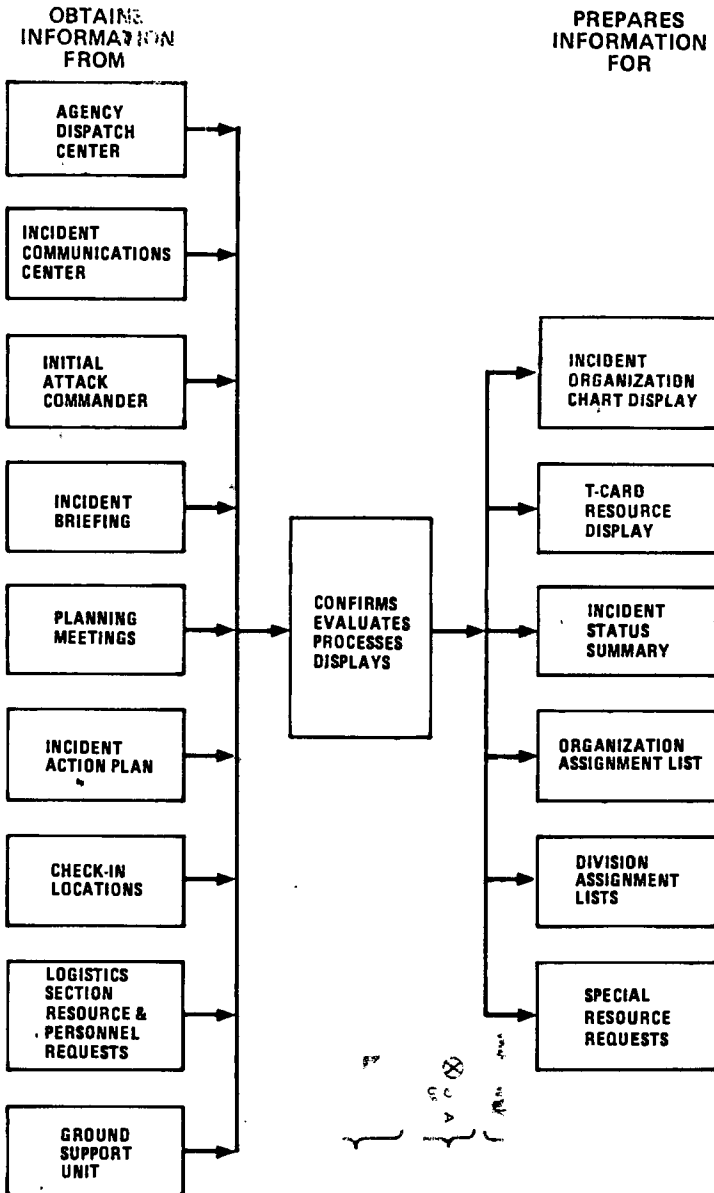
SUGGESTED FOR PLACEMENT ON BASE MAP	SUGGESTED FOR PLACEMENT ON OVERLAYS
<p>MINIMUM RECOMMENDED</p> <p>BLACK { RIDGE } HIGHLIGHTED GEOGRAPHIC OR MANMADE FEATURES</p> <p>BLACK { COMPLETED DOZER LINE</p> <p>BLACK { * COMPLETED LINE</p> <p>BLACK { LINE BREAK COMPLETED</p> <p>RED { 10 AUG 1430 FIRE ORIGIN</p> <p>RED { * HAZARD (IDENTIFY TYPE OF HAZARD, E.G., POWER LINES) or e.g.,</p> <p>BLUE { * INCIDENT COMMAND POST</p> <p>BLUE { * INCIDENT BASE</p> <p>BLUE { * CAMP (IDENTIFY BY NAME)</p> <p>BLUE { * H-3</p> <p>BLUE { * HELIBASE</p> <p>BLUE { * REPEATER/MOBILE RELAY</p> <p>OPTIONAL</p> <p>BLUE { TELEPHONE</p> <p>BLUE { FIRE STATION</p> <p>BLUE { WATER SOURCE (IDENTIFY TYPE, I. E., POND, CISTERN, HYDRANT) or I.E.,</p> <p>BLUE { MOBILE WEATHER UNIT</p> <p>BLUE { IR GROUND LINK</p> <p>BLUE { * FIRST AID STATION</p>	<p>RED { 10 AUG 1730 * UNCONTROLLED FIRE EDGE</p> <p>RED { 10 AUG 1730 SPOT FIRE</p> <p>RED { 10 AUG 1700 * HOT SPOT</p> <p>ORANGE { 10 AUG 2000 * FIRE SPREAD PREDICTION</p> <p>BLACK { * PLANNED FIRE LINE</p> <p>BLACK { * PLANNED SECONDARY LINE</p> <p>BLACK { [I] [II] * BRANCHES { INITIALLY NUMBERED CLOCKWISE FROM FIRE ORIGIN</p> <p>BLACK { (A) (B) * DIVISIONS { INITIALLY LETTERED CLOCKWISE FROM FIRE ORIGIN</p> <p>BLACK { <u>W/10 1600 9/7</u> * WIND SPEED AND DIRECTION</p> <p>BLACK { * PROPOSED DOZER LINE</p> <p>BLACK { * FIRE BREAK (PLANNED OR INCOMPLETE)</p> <p>BLUE { REDFERN * STAGING AREA (IDENTIFY BY NAME)</p> <p>ALL OVERLAYS MUST CONTAIN REGISTRATION MARKS. THESE MAY CONSIST OF IDENTIFIED ROAD INTERSECTIONS, TOWNSHIP/RANGE COORDINATES, MAP CORNERS, ETC.</p>

* - TO BE USED ON INCIDENT BRIEFING AND ACTION PLAN MAPS (NO COLOR)

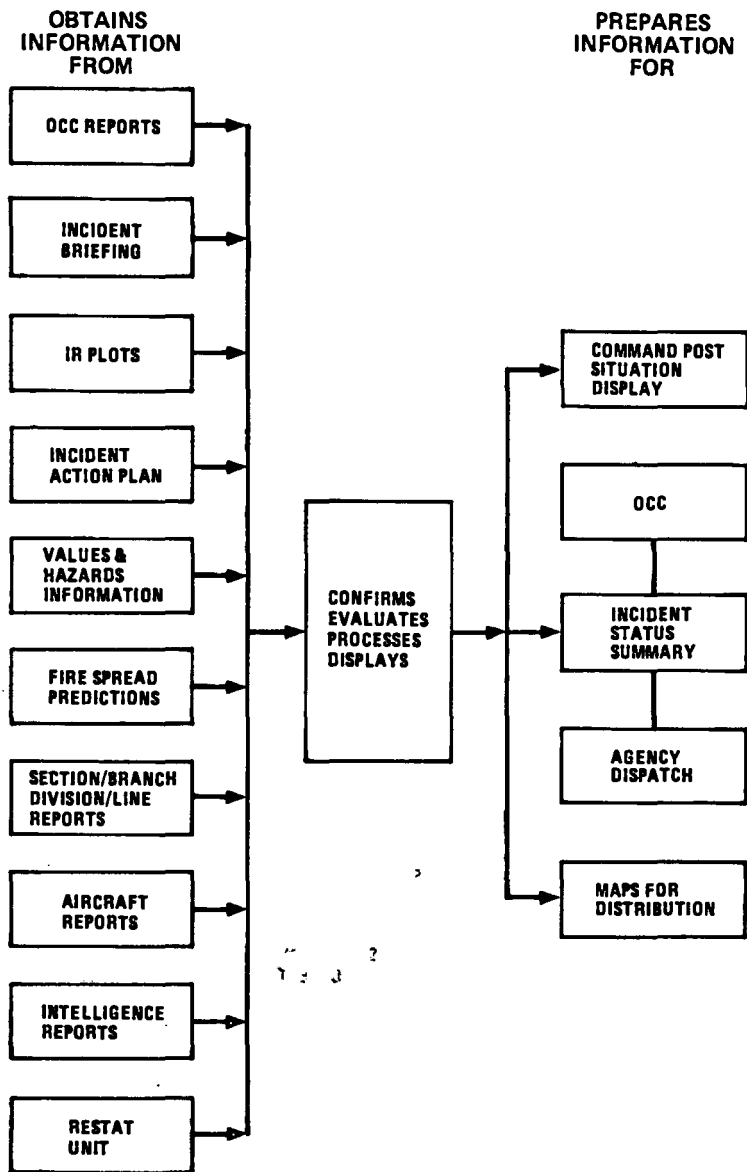
Jan. 4, 1980

FP 420-1

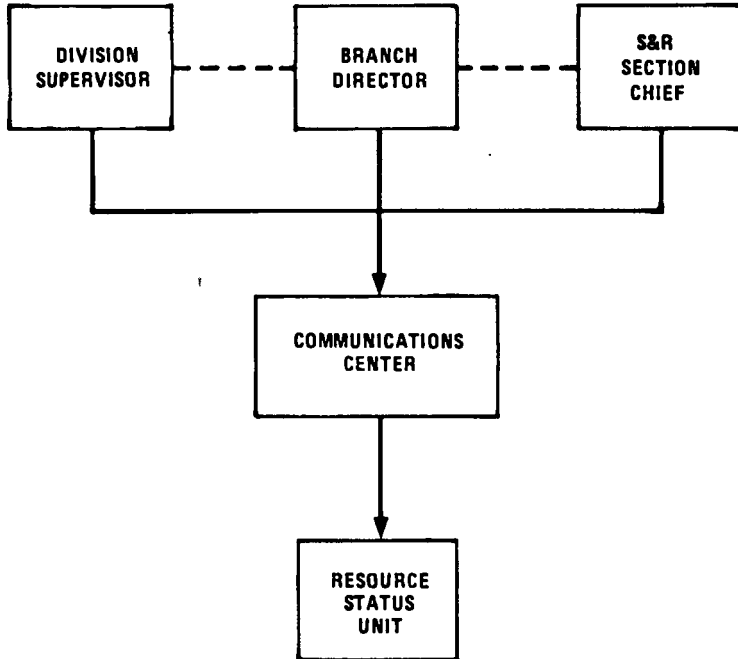
RESOURCE STATUS UNIT FUNCTIONS & INTERACTIONS



SITUATION STATUS UNIT FUNCTIONS & INTERACTIONS



ACTIVE S&R RESOURCE STATUS CHANGE REPORTING



1. REPORT: A) RESOURCES CHANGING STATUS
(ACTIVE, AVAILABLE, OUT OF SERVICE)
B) RESOURCES MOVING BETWEEN DIVISIONS
2. NOTE: AUTHORITY WHO APPROVES THE STATUS CHANGE
IS RESPONSIBLE FOR REPORTING IT TO RESTAT

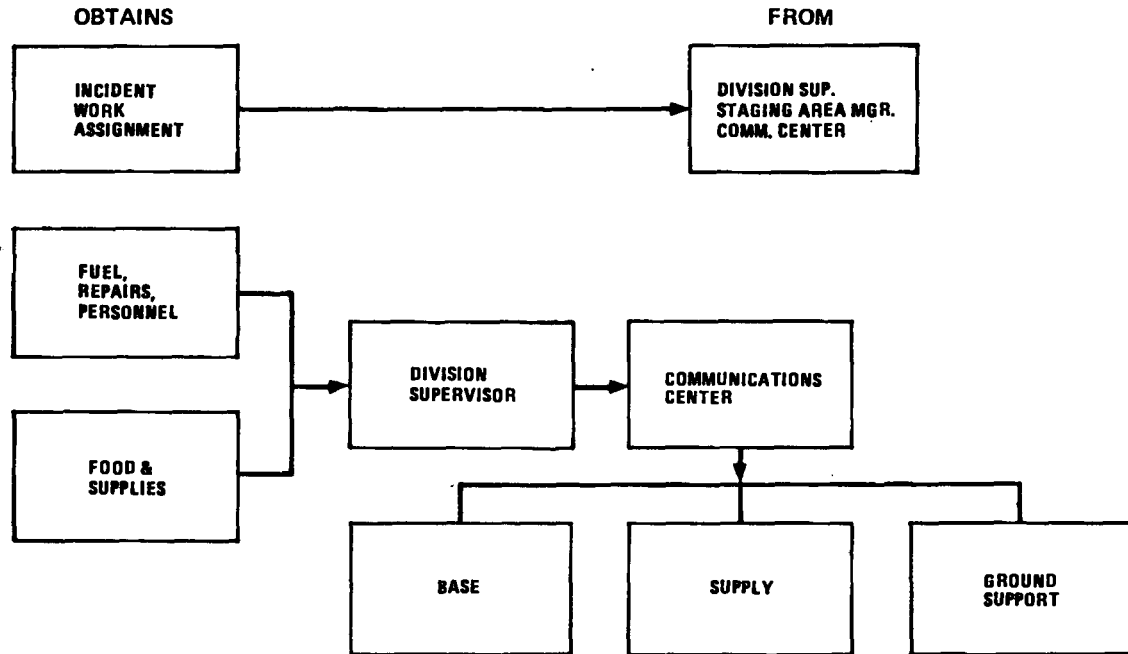
———— STATUS REPORTING

----- COORDINATION

STRIKE TEAM LEADER INTERACTIONS

(ACTIVE STATUS)*

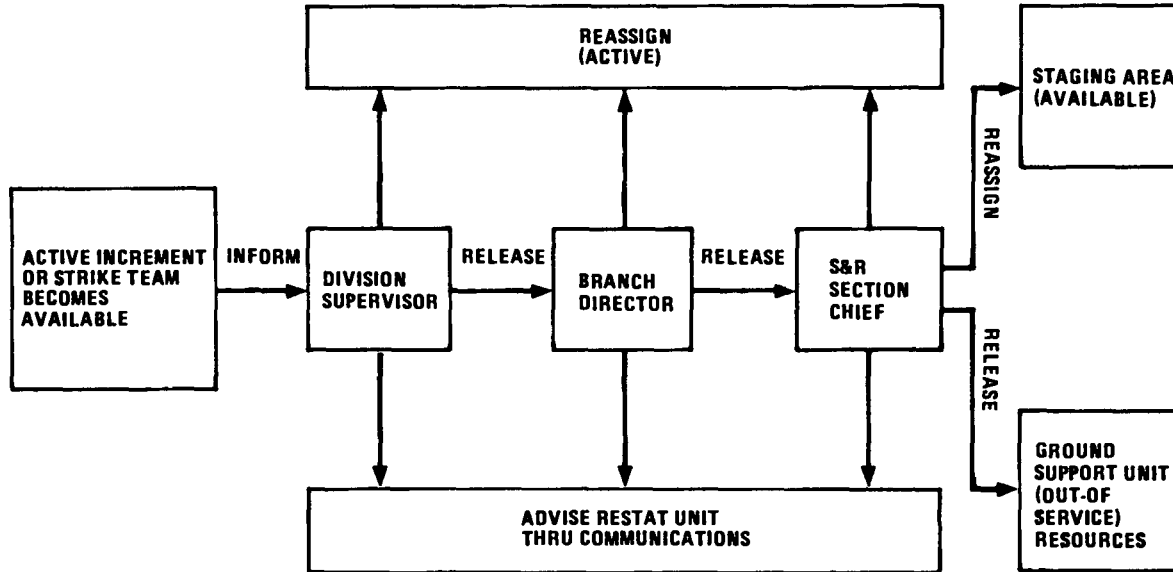
Jan. 4, 1980



* OUT OF SERVICE RESOURCES INTERACT DIRECTLY
WITH APPROPRIATE UNITS FOR SERVICE AND SUPPORT

FP 420-1

RELEASE OF ACTIVE SUPPRESSION RESOURCES



**NOTE: AUTHORITY WHO APPROVES THE STATUS CHANGE
IS RESPONSIBLE FOR REPORTING IT TO RESTAT**

STRIKE TEAM TYPES MINIMUM STANDARDS .

Jan. 4, 1980

E N G I N E S	STRIKE TEAM TYPES	NUMBER/TYPE	MINIMUM EQUIPMENT STANDARDS							MINIMUM MANNING		
			Pump Capac.	Water Capac.	2½" Hose	1½" Hose	1" Hose	Ladder	Heavy Stream	S/T Leader	Per Incre- ment	Total Per- sonnel
	1	5 - Type 1	1000 GPM	400 Gal.	1200 Ft.	400 Ft.	200 Ft.	20 Ft. Ext.	500 GPM	1	4	21
	2	5 - Type 2	500 GPM	400 GPM	1000 Ft.	500 Ft.	300 Ft.	20 Ft. Ext.	N/A	1	3	16
	3	5 - Type 3	120 GPM	300 Gal.	N/A	1000 Ft.	800 Ft.	N/A	N/A	1	3	16
	4	5 - Type 4	50 GPM	200 Gal.	N/A	300 Ft.	800 Ft.	N/A	N/A	1	3	16
C R E W S	1	Hand crew combinations consisting of a minimum of 35 persons (Do not mix type 1 and Type 2 crews)	<u>CDF</u> CDC (15) CYA (15) CCC (15)	<u>USFS</u> Hotshot (21) Regular (20) Flycrew (10)	<u>LAC</u> Paid (13) Flycrew (10) Adult Inmate (13)	<u>VNC</u> Paid (10) Flycrew (8)	1	N/A	36			
	2		<u>CDF</u> CDF/EFF(15) CCC/EFF(15)	<u>USFS</u> Blue Card (20)			1	N/A	36			
D O Z E R S	1	2 - Type 1 1 - Dozer Tender	Heavy Dozer (i.e., D-7, D-8 or equivalent)							1	2 — 1	6
	2	2 - Type 2 1 - Dozer Tender	Medium Dozer (i.e., D-5, D-6 or equivalent)							1	2 — 1	6
	3	2 - Type 3 1 - Dozer Tender	Light Dozer (i.e., D-4 or equivalent)							1	2 — 1	6

4-1

FP 420-1

PRIMARY MOBILE SUPPRESSION RESOURCES

	RESOURCE	RADIO CALL	COMPONENTS	TYPES			
				1	2	3	4
G R O U N D S E R	Engine Company	Engine	Pump Water Tank Hose 2-1/2" Hose 1-1/2" Hose 1" Ladder Heavy Stream Personnel	1000 GPM 400 Gal. 1200 Ft. 200 Ft. - 20 Ft. Ext. 500 GPM 4	500 GPM 400 Gal. 1000 Ft. 500 Ft. 300 Ft. 20 Ft. Ext. - 3	120 GPM 300 Gal. - 1000 Ft. 800 Ft. - - 3	50 GPM 200 Gal. - 300 Ft. 800 Ft. - - 3
	Truck Company	Truck	Ground Ladder Aerial/Snorkel Personnel	163 Ft. 75 Ft. 4	163 Ft. 50 Ft. 4		
	Water Tender	Water Tender	Pump Water Tank	300 GPM 1000 Gal.	- 1000 Gal.		
	Brush Patrol	Patrol	Pump -15 GPM Hose 1" -150 Ft. Tank -75 Gal. Personnel-1				
	Rescue Medical	Rescue Amb Medic Squad	Transport capacity Personnel	2 Ambulance 2 (1 EMT-I & 1 EMT-II)	0 Squad 2 (1 EMT-1 & 1 EMT-II)		
	Bulldozer	Dozer	Size Personnel	Heavy (D-7, D-8) 2	Medium (D-5, D-6) 2	Light (D-4) 2	
	Bulldozer Tender	Dozer Tender	Fuel-100 Gal. Compressed Air(opt)				
	Hand Crew	Crew # _____	Personnel, Tools and Transportation	TYPE 1		TYPE 2	
				. Highest training level . No use restriction . Fully mobilized . Highest experience level . Fully equipped . Permanently assigned . Supervision CDF USFS Inmate(15*) Hotshot (21) CYA (15) Regular (20) CCC (15) Fly Crew(10) LAC VNC Paid(13) Paid (10) Fly Crew(10) Fly Crew (8) Adult Inmate(13)		. Minimum training or . Some use restriction or . Not fully mobilized or . Moderate experience or . Minimum equipment or . No assigned supervision CDF/EFF (15) CCC/EFF (15) USFS - Blue Card (20)	
	*Indicates average number of crew personnel including supervision.						
	Air Crash	Crash	Light water and/or protein foam with pump and turret.				
	Fire Boats	Boat	Pump				
	Foam/Carrier	Foam	Protein foam or light water	Light Water	High Expansion	Protein	
	Dry Chemical	Drichem	500 lb.	Truck	Trailer		

Jan 4, 1980

FP 420-1

PRIMARY MOBILE SUPPRESSION RESOURCES

	RESOURCE	RADIO CALL	COMPONENTS	TYPES			
				1	2	3	4
A I R T	Air Tanker	Tanker Designator	Capacity	2000	1000	800	
	Helicopters	Copter	Crew/Passengers	10	5	3	
			Cargo Wt. Capac.	2500	1200	600	
			Tank	300 Gal. (BELL 205)	150 Gal. (BELL 206)	100 Gal. (BELL 47)	
			Seats, including pilot	16	9	5	3
			Card weight capacity	5000	2500	1200	600
			Tank; gal of retardant	700	300	150	100
	Example	Bell 214 Heavy	Bell 204, 205, 212 Medium	Bell 206 Light	Bell 47 Light		
A I R T	Helicopter Tender	Helitender # _____	Fuel and Support Equipment				
A I R T	Helitack Crew	Helitack	3 Crew Personnel				
T							

Jan 4., 1980

FP 420-1

FIRESCOPE SUPPORT RESOURCES

RESOURCE	RADIO CALL	COMPONENTS	TYPES			
			1	2	3	4
Breathing Apparatus Support	Breathing Support		Compressed	Cascade		
Communication	Repeater	Portable/Mobile Repeater Capability	Truck	Trailer	Portable	
Communications Technician	Comm. Support # _____	Communications Repair Capability				
Crew Transport	Crew Transport	Passengers	30	20	10	
Field Mobile Mechanic	Repair # _____	Repair of Mobile Ground Equipment	2-5 Heavy Equipment	Light Equipment		
Food Dispenser	Food Dispenser # _____	Meal	150	50		
Fuel Tender	Fuel Tender Specify: Av Gas; Jet Fuel; Diesel; Gas	Fuel	1000 Gal.	100 Gal.		
Heavy Equipment Transport	Transport # _____	Capacity	Heavy (D-7, D-8)	Medium (D-6)	Light (D-4)	
Heavy Utility Tow Truck	Heavy Utility					
Illumination	Light	Port. Lights	Truck	Trailer		
Mobile Communications	Communications # _____		Truck/Van	Trailer		
Portable Pump	N/A	Pumping Capacity	500 GPM	250 GPM	50 GPM	
Portable Stove	N/A	Trailer				
Power Generator	N/A	Generator	Truck	Trailer		
Refrigeration			Truck	Trailer		
Retardant Mixer						
Salvage						
Utility Transport			Over 1 Ton	Under 1 Ton		

HV

OR

CALIFORNIA DEPARTMENT OF FORESTRY		
CDF STATE NET	159.300 T	151.355 R
CDF SOUTHERN CALIFORNIA REGION NET	159.330 T	151.265 R
CDF RIVERSIDE WEST	159.360 T	151.385 R
CDF RIVERSIDE EAST	159.285 T	151.175 R
CDF SAN BERNARDINO	159.390 T	151.445 R
CDF SAN DIEGO	159.225 T	151.190 R
CDF ORANGE	159.345 T	151.325 R
CDF HANDIE-TALKIE (RED)	151.220 TR	
CDF AIR NET (BLUE)	151.280 TR	
CDF AIR NET (GREEN)	151.295 TR	
CDF AIR NET (YELLOW)	151.310 TR	
LOS ANGELES COUNTY		
L.A. DISPATCH	154.430	
SAN GABRIEL VALLEY DISPATCH CENTER	154.340	
ANTELOPE VALLEY DISPATCH CENTER	154.400	

LOS ANGELES CITY			
CHANNEL	1	YELLOW	506.3125
	2	YELLOW	506.5375
	3	YELLOW	506.9125
	4	YELLOW	506.1375
	5	YELLOW	506.6375
	6	YELLOW	507.0125
	7	RED	33.70
	8	RED	33.82*
	9	RED	33.90
TACTICAL	10	RED	33.94*
	11		33.60
	12		33.48*
	13		33.52
	14		33.86*
*COMSTAT 6 has radio with these L.A.F.D. frequencies.			
OFFICE OF EMERGENCY SERVICES			
FIRE AND RESCUE DIVISION		FREQ. 1	33.98 T
			154.160 R
		FREQ. 2	33.66 T
			154.220 R

Jan 4., 1980

FP 420-1

Jan 4., 1980

FPS 420-1

NATIONAL FIRE RADIO CACHE 500 C-1 SYSTEM

Numbers S-1 or S-2 5-Channel

Number, Equipment and Type	Function and Frequency				
	TAC-1 168.050	TAC-2 168.200	COM-1 168.700	COM-R T170.975 R168.700	AIR DISP 168.625
6 2-channel packsets TAC Div.	X		X		
18 5-channel personal portable TAC Div.	X	X	X	X	X
27 4-channel personal portable TAC Div.	X	X	X	X	
4 2-channel packsets base camp	X		X		
8 5-channel personal portable base camp	X	X	X	X	X
3 2-channel packsets base camp			X	X	
10 2-channel personal portable TAC Spec.	X	X			

NFRC C-1 cache prepositioned at Boise Interagency Fire Center. Cache includes repeater and aircraft VHF 720. Service net, repeater and system numbers S-3 and S-4 are also available and compatible with above. Order through Agency Dispatch.

Note: The Air Dispatch channel, 168.625 is not available for field use for Air-Ground communications within USFS Region 5 (California).

NATIONAL FIRE RADIO CACHE 600 C-2 SYSTEM

Numbers S-9 or S-10 6-Channel

Number, Equipment and Type	Function and Frequency					
	TAC-1 168.050	TAC-2 168.200	TAC-3 168.600	COM-2 168.100	COM-R T170.450 T168.100	AIR DISP 168.625
6 2-channel packsets TAC Div.	X			X		
4 6-channel personal portable TAC Div.	X	X	X	X	X	X
4 5-channel packsets base camp	X	X	X	X	X	
8 6-channel personal portable base camp	X	X	X	X	X	X
3 5-channel packsets base camp	X	X	X	X	X	
1 2-channel personal portable TAC Spec.	X	X				

NFRC C-2 cache located at USFS Arcadia Service Center. Cache includes repeater and aircraft VHF 720. Service net, repeater (L-2) F-1, F-2 or F-3 and system numbers S-11, 12 and 13 are also available and compatible with above. Order through Agency Dispatch.

Note: The Air Dispatch channel 168.625 is not available for field use for Air-Ground communications within USFS Region 5 (California).

5-3
(page 5-4 blank)

ORANGE COUNTY			
FIRE NET 1		46.06 TR	
FIRE NET 2		46.14 TR	
FIRE NET 3		46.48 TR	
SANTA BARBARA COUNTY			
CITY AND COUNTY		153.770 TR	
STATE FIRE MUTUAL AID FREQUENCIES			
FREQUENCIES	WHITE 1	154.280	
	WHITE 2	154.265	
	WHITE 3	154.295	
VENTURA COUNTY			
COUNTY (FREQ. 1)		154.010 TR	
COUNTY (FREQ. 2)		154.325 TR	
MUTUAL AID (FREQ. 3)		154.280 TR	
UNITED STATES FOREST SERVICE (Primary Frequencies)			
ANGELES NF		171.575 TR	
CLEVELAND NF		168.750 TR	
SAN BERNARDINO NF		171.475 TR	
LOS PADRES NF 1		170.550 TR	
2		170.475 TR	
TACTICAL NET		168.200 TR	
USFS AIR NET AD		168.625 TR	
USFS AIR NET ADR		168.025 T	
USFS AIR NET G/A		170.000 TR	
USFS AIR NET 1	} AIR TACTICS	166.675 TR	
USFS AIR NET 2		169.150 TR	
USFS AIR NET 3		169.200 TR	

US FOREST SERVICE REGION 5 EMERGENCY CACHE RADIO						
NUMBER AND TYPE		CHANNELS				
		TAC 1	TAC 2	COM 3	COM-R 4	AIR/GRD
28-5 Channel HT's		168.050	168.200	168.700	TL70.975	170.000
4 - Packsets					RL68.700	
1 - Base Station						
F-5 cache is located in Sonora. F-6 cache is located in Redding. Cache also includes battery operated radio repeater and 750W AC power plant. Order through South Zone.						
FIREMARS RADIO CACHE						
CACHE	NUMBER AND TYPE RADIO	CHANNELS				
		1	2	3	4	5
1	20 4-Channel Pers/Port.	154.280 (White 1)	154.265 (White 2)	154.295 (White 3)	TL53.830 RL54.295	
2	19 4-Channel Pers/Port.					
1	4 5-Channel Portamobile (each cache)	154.280	154.265	154.295	TL53.830 RL54.295	154.160 (OES STATE)
2						
FIREMARS #1 is located at LA Co. Fire Station #26 in La Puente. FIREMARS radio cache includes trailer mounted repeater and/or base station. Order through Agency Dispatch.						
FIREMARS #2 is located at the Central Valley Fire Protection District in San Bernardino County. (No base/repeater)						

Jan 4., 1980

FPS 240-1

GLOSSARY OF TERMS

Introduction This glossary contains definitions of terms frequently used in FIRESCOPE documentation.

Active Resources. Resources checked-in and assigned work tasks on an incident.

Agency Representative. Individual assigned to an incident from an assisting or cooperating agency who has been delegated full authority to make decisions on all matters affecting that agencies participation at the incident. Agency Representatives report to the incident Liaison Officer.

Air Tanker. Any fixed wing aircraft certified by FAA as being capable of transport and delivery of fire retardant solutions.

Allocated Resources. Resources dispatched to an incident that have not yet checked-in with the Incident Communications Center.

Assisting Agency. An agency directly contributing suppression, rescue, support, or service resources to another fire suppression agency.

Available Resources. Resources assigned to an incident and available for an S&R assignment.

Base. That location at which the primary logistics functions are coordinated and administered. (Incident name or other designator will be added to the term "Base.") The Incident Command Post may be collocated with the base. There is only one base per incident.

Branch. That organization level having functional/geographic responsibility for major segments of incident operations. The Branch level is organizationally between Section and Division.

Brush Patrol Unit. Any light, mobile unit, having limited pumping and water capacity, capable of off-road operations.

Bulldozer Company. Any bulldozer with a minimum complement of two persons.

Camp. A geographical site, within the general incident area, separate from the base, equipped and staffed to provide food, water, rest, and sanitary services to incident personnel.

Clear Text. The use of plain english in radio communications transmissions. No Ten codes, or agency specific codes are used when using Clear Text.

Jan. 4, 1980

FP 420-1

Command. The act of directing, ordering and/or controlling resources by virtue of explicit legal, agency, or delegated authority.

Command Staff. The Command Staff consists of the Information Officer, Safety Officer, and Liaison Officer, who report directly to the Incident Commander.

Company. Any piece of equipment having a full complement of personnel.

Comm. Unit. (Communications Unit) A vehicle (trailer or mobile van) used to provide the major part of an incident Communications Center.

Coordination. The process of systematically analyzing a situation, developing relevant information, and informing appropriate command authority (for its decision) of viable alternatives for selection of the most effective combination of available resources to meet specific objectives. The coordination process (which can be either intra- or inter-agency) does not in and of itself involve command dispatch actions. However, personnel responsible for coordination MAY perform command or dispatch functions within limits as established by specific agency delegations, procedures, legal authority, etc.

Cooperating Agency. An agency supplying assistance other than direct suppression, rescue, support, or service functions to the incident control effort (e.g., CHP--traffic management, Telephone Company--telephone service, etc.).

Crew Transport. Any vehicle capable of transporting personnel in specified numbers.

Dispatch. The implementation of a command decision to move a resource or resources from one place to another.

Dispatch Center. A facility from which resources are directly assigned to an incident.

Division. That organization level having responsibility for suppression and rescue operations within a defined geographic area or with functional responsibility. The Division level is organizationally between the Strike Team and the Branch.

Jan. 4, 1980

FP 420-1

Element. Any identified part of the Incident Command System organization structure.

Engine. Any ground vehicle providing specified levels of pumping, water and hose capacity but with less than the specified level of personnel.

Engine Company. Any ground vehicle providing specified levels of pumping, water, hose capacity and personnel.

Firmod. A computer program which, with given information, will predict an hourly rate of spread from a point.

Firecast. A set of firemodels run during fire season at the OCC on preselected locations to indicate possible firespread from those points for that date.

Firescope. An acronym for Firefighting Resources of Southern California Organized for Potential Emergencies.

Firescope Task Force. A technical advisory and formulation group composed of a representative from the California Department of Forestry, California Office of Emergency Services, Los Angeles City Fire Department, Los Angeles County Fire Department, United States Forest Service (Region V), Santa Barbara County Fire Department and Ventura County Fire Department.

Flycrew. A handcrew of predetermined size transported to an incident via helicopter.

Food Dispenser. Any vehicle capable of dispensing food to incident personnel.

Fuel Tender. Any vehicle capable of supplying fuel to ground or airborne equipment.

General Staff. The group of incident management personnel comprised of:

The Incident Commander
The Suppression and Rescue Chief
The Planning Chief
The Logistics Chief
The Finance Chief

Hand Crew. Predetermined individuals that are supervised, organized, and trained principally for clearing brush as a fire suppression measure.

Heavy Equipment Transport. Any ground vehicle capable of transporting a bulldozer.

Jan. 4, 1980

FP 420-1

Helibase. A location within the general incident area for parking, fueling, maintenance, and loading of helicopters.

Helitack Crew. A crew of 3 or more individuals who may be assigned to suppression and rescue or to support helicopter operations.

Helicopter Tender. A ground service vehicle capable of supplying fuel and support equipment to helicopters.

Helispot. A location where a helicopter can take off and land. Some helispots may be used for temporary retardant loading.

Incident Action Plan. The Incident Action Plan, which is initially prepared at the first planning meeting, contains general control objectives reflecting the overall incident strategy, and specific suppression and rescue action plans for the next operational period. When complete, the Incident Action Plan will have a number of attachments.

Incident Commander. The individual responsible for the management of all incident operations.

Incident Command Post (ICP). That location at which the primary command functions are executed and usually collocated with the incident base.

Incident Command System (ICS). The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Incident Staging Area. That location where incident personnel and equipment are assigned on a 3 minute available status.

Increment. Any single resource on which individual status is maintained.

Initial Attack. Resources initially committed to an incident.

IR. A heat detection system used for fire detection, mapping and hot spot identification.

IR Groundlink. A capability through the use of a special mobile ground station to receive air to ground infrared imagery for interpretation.

Jurisdictional Agency. The agency having fire protection jurisdiction for a specific geographical area.

Jan. 4, 1980

FP 420-1

Message Center. The message center is an integral part of the Communications Center and is collocated or placed adjacent to it. It receives, records, and routes information about resources reporting to the incident, resource status, and administration and tactical traffic.

Multi-Agency Coordination System (MACS). The combination of facilities, equipments, personnel, procedures, and communications integrated into a common system with responsibility for coordination of assisting agency resources and support to agency emergency operations.

NOAA Weather Station. A mobile weather data collection and forecasting facility (including personnel) provided by the National Oceanic and Atmospheric Administration which can be utilized within the incident area.

Operations Coordination Center (OCC). The primary facility of the Multi-Agency Coordination System. It will house the staff and equipment necessary to perform the MACS functions.

Operational Period. The period of time scheduled for execution of a given set of suppression and rescue actions as specified in the Incident Action Plan.

Orthophoto Maps. Aerial photographs corrected to scale such that geographic measurements may be taken directly from the prints. They may contain graphically emphasized geographic features and may be provided with overlays of such features as: water systems, important facility locations, etc.

Out-of-service Resources. Resources assigned to an incident but unable to respond for mechanical, rest, or personnel reasons.

Overhead Personnel. Personnel who are assigned to supervisory positions which includes Incident Commander, Command Staff, General Staff, Directors, and Supervisors.

Personnel Pool. The personnel pool consists of unassigned personnel who have reported to the Incident without an assignment--that is, they are not assigned to an increment, strike team or organizational unit.

Planning Meeting. A meeting, held as needed throughout the duration of an incident, to select specific strategies and tactics for incident control operations and for service and support planning.

Radio Cache. A cache may consist of a number of portable radios, a base station and in some cases a repeater stored in a predetermined location for dispatch to incidents.

Jan. 4, 1980

FP 420-1

Reinforced Attack. Those resources requested in addition to the initial attack.

Reporting Location. Any one of six facilities/locations where incident assigned resources may check-in. The locations are: Incident Command Post - RESTAT; Base, Camp, Staging Area, Helibase or Division Supervisors for direct line assignments to the line. (Check-in at one location only)

Rescue Medical. Any manned ground vehicle capable of providing emergency medical services.

Resources. All personnel and major items of equipment available, or potentially available, for assignment to incident tasks.

RESTAT. An acronym for Resources Status Unit - A Unit within the Planning Section.

Section. That organization level having functional responsibility for primary segments of incident operations such as: Suppression and Rescue, Planning, Logistics, Finance. The Section level is organizationally between Branch and Incident Commander.

SITSTAT. An acronym for the Situation Status Unit - A Unit within the Planning Section.

Strike Team. Specified combination of suppression and rescue resources and a leader.

Task Force. A group of suppression and rescue resources with a leader temporarily assembled for a specific mission.

Technical Advisory Unit. This unit consists of advisors with special skills who are activated only when needed. Advisors may be needed in the areas of water resources, environmental concerns, resource use and training areas.

Unit. That organization element having functional responsibility for a specific incident planning, logistic, or finance activity.

Water Tender. Any ground vehicle capable of transporting specified quantities of water.

FIRESCOPE AGENCY DESIGNATORS

ID	AGENCY	CO/LOC	ID	AGENCY	CO/LOC
ABL	Arrow Bear Lake F. Dept.	San Bernardino	BGO	Borrego Springs F.P.D.	San Diego
ADL	Adelanto V.F.D.	San Bernardino	BHL	Beverly Hills Fire Dept.	Los Angeles
AFG	George Air Force Base	San Bernardino	BIF	Boise Interagency Fire Ctr.	Idaho
AFM	March Air Force Base	Riverside	BLY	Blythe Fire Dept.	Riverside
AFN	Norton Air Force Base	San Bernardino	BMT	Beaumont Fire Dept.	Riverside
AFV	Vandenberg Air Force Base	Santa Barbara	BON	Bonita-Sunnyside F.P.D.	San Diego
AGC	Aerojet General Corp.	San Bernardino	BOS	Bostonia F.P.D.	San Diego
ACP	Alpine Local Fire Dist.	San Diego	BPK	Buena Park Fire Dept.	Orange
ALH	Alhambra Fire Dept.	Los Angeles	BRA	Brea Fire Dept.	Orange
ALT	Alta Loma F.P.D.	San Bernardino	BRK	Burbank Fire Dept.	Los Angeles
ANA	Anaheim Fire Dept.	Orange	BRP	U.S. Bureau of Rec. Parker Dam	San Bernardino
ANF	Angeles National Forest	Los Angeles	CBD	Carlsbad Fire Dept.	San Diego
APP	Apple Valley, F.P.D.	San Bernardino	CDF	Calif. Dept. of Forestry	Multi-county
ARC	Arcadia Fire Dept.	Los Angeles	CGP	U.S.Coast Guard, Parker Dam	San Bernardino
ARG	Argus F.P.D.	San Bernardino	CHC	Camarillo State Hospital Fire Dept.	Ventura
ARR	Lake Arrowhead Fire Dist.	San Bernardino	CHO	Chino Rural Fire Dist.	San Bernardino
AVA	Avalon Fire Dept.	Los Angeles	CHV	Chula Vista Fire Dept.	San Diego
AZU	Azusa Fire Dept.	Los Angeles	CIM	Calif. Inst. for Men, Chino	San Bernardino
BAN	Banning Fire Dept.	Riverside	CMP	Compton Fire Dept.	Los Angeles
BAK	Baker V.F.D.	San Bernardino	CNF	Cleveland National Forest	San Diego
BAR	Barstow F.P.D.	San Bernardino	COA	Coachella F.P.D.	Riverside
BBC	Big Bear City Fire Dept.	San Bernardino	COL	Colton Fire Dept.	San Bernardino
BBL	Big Bear Lake Fire Dept.	San Bernardino	COR	Corona Fire Dept.	Riverside
BCC	San Bernardino Co. Cons. Fire Dist.	San Bernardino	COS	Costa Mesa Fire Dept.	Orange
BDC	San Bernardino Co. Fire Dept.	San Bernardino	COV	Covina Fire Dept.	Los Angeles
BDF	San Bernardino Natl. Forest	San Bernardino	CPH	Pacific State Hospital Fire Dept. Pomona	Los Angeles
BDO	San Bernardino City Fire Dept.	San Bernardino	CRC	Calif. Rehab. Ctr. Fire Dept. Corona	Riverside
BDY	Mt. Baldy V.F.D.	San Bernardino	CRD	Coronado Fire Dept.	San Diego

Jan. 4, 1980

FP 420-1

FIRESCOPE AGENCY DESIGNATORS

Jan. 4, 1980

FP 420-1

ID	AGENCY	CO/LOC	ID	AGENCY	CO/LOC
CRF	Crest Forest Fire Dist.	San Bernardino	GLN	Glendale Fire Dept.	Los Angeles
CRP	Carpinteria-Summerland Fire Dept.	Santa Barbara	GMX	Grossmont-Mt. Helix Fire Dept.	San Diego
CST	Crest Local Fire Dist.		GUA	Guadalupe Fire Dept.	Santa Barbara
	El Cajon	San Diego	GVY	Green Valley Lake Fire Dept.	San Bernardino
CUC	Cucamonga F.P.D.	San Bernardino	HAW	Hawthorne Fire Dept.	Los Angeles
CUL	Culver City Fire Dept.	Los Angeles	HCN	Harbison Canyon V.F.D.	San Diego
CUY	Cuyamaca Rancho State Park	San Diego	HEM	Hemet Fire Dept.	Riverside
DAC	Douglas Aircraft Co. Fire Dept.	Los Angeles	HES	Hesperia F.P.D.	San Bernardino
DGT	Daggett Fire Dept.	San Bernardino	HNK	Hinkley V.F.D.	San Bernardino
DIO	Del Dios V.F.D.	San Diego	HMB	Hermosa Beach Fire Dept.	Los Angeles
DMR	Del Mar Fire Dept.	San Diego	HTB	Huntington Beach Fire Dept.	Orange
DNY	Downey Fire Dept.	Los Angeles	IDL	Idyllwild F.P.D.	Riverside
ELC	El Cajon Fire Dept.	San Diego	IMB	Imperial Beach Fire Dept.	San Diego
ELM	El Monte Fire Dept.	Los Angeles	IND	Indio Fire Dept.	Riverside
ELS	El Segundo Fire Dept.	Los Angeles	INF	Inyo National Forest	No. Calif.
ENC	Encinitas F.P.D.	San Diego	ING	Inglewood Fire Dept.	Los Angeles
ENF	Eldorado National Forest	No. Calif.	JCB	Jacumba V.F.D.	San Diego
ESC	Escondido Fire Dept.	San Diego	JSH	Joshua Tree F.P.D.	San Bernardino
FAW	Fawnskin F.P.D.	San Bernardino	KAI	Kaiser Steel Fire Dept. Fontana	San Bernardino
FBK	Fallbrook F.P.D.	San Diego	KNF	Klamath National Forest	No. Calif.
FFF	Forest Falls F.P.D.	San Bernardino	LAB	Laguna Beach Fire Dept.	Orange
FLF	Fullerton Fire Dept.	Orange	LAC	Los Angeles County Fire Dept.	Los Angeles
FLM	Fillmore V.F.D.	Ventura	LCC	Lytle Creek Canyon V.F.D.	San Bernardino
FVY	Fountain Valley Fire Dept.	Orange	LCI	Federal Cor. Inst. Lompoc	Santa Barbara
GDA	Gardena Fire Dept.	Los Angeles	LCS	LaCosta Fire Dist.	San Diego
GDP	General Dynamics - Pomona Div.	Los Angeles	LEL	Lake Elsinore Fire Dept.	Riverside
GDS	General Dynamics/San Diego	San Diego	LFD	Los Angeles City Fire Dept.	Los Angeles
GGA	Gulf General, San Diego	San Diego	LGV	Lemon Grove F.P.D.	San Diego
GGV	Garden Grove Fire Dept.	Orange	LHB	La Habra Fire Dept.	Orange
			LHH	La Habra Heights V.F.D.	Los Angeles
			LKS	Lakeside F.P.D.	San Diego
			LMP	Lompoc Fire Dept.	Santa Barbara

FIRESCOPE AGENCY DESIGNATORS

ID	AGENCY	CO/LOC	ID	AGENCY	CO/LOC
LMS	La Mesa Fire Dept.	San Diego	MPK	Monterey Park Fire Dept.	Los Angeles
LND	Landers V.F.D.	San Bernardino	MUR	Murrietta F.P.D.	Riverside
LNF	Lassen National Forest	No. Calif.	NAT	National City Fire Dept.	San Diego
LOB	Long Beach Fire Dept.	Los Angeles	NBY	Newberry Comm. Service Dist.	San Bernardino
LOC	Lockheed Co. Redlands	San Bernardino	NED	Needles Fire Dept.	San Bernardino
LOM	Loma Linda Fire Dept.	San Bernardino	NGO	Calif. A.N.G., Ontario A/P	San Bernardino
LPF	Los Padres National Forest	Santa Barbara	NOR	Norco F.P.D.	Riverside
LSW	Lower Sweetwater F.P.D.	San Diego	NPB	Newport Beach Fire Dept.	Orange
LVN	La Verne Fire Dept.	Los Angeles	NRS	Rocketdyne Test Sta. Santa Susana	Ventura
LVY	Lucerne Valley F.P.D.	San Bernardino	NVA	Los Alamitos Naval Air Sta.	Orange
LYN	Lynwood Fire Dept.	Los Angeles	NVC	Naval Amphibious Base, Coronado	San Diego
MCB	Marine Supply Ctr. Barstow	San Bernardino	NVE	Naval Elec. Lab, San Diego	San Diego
MCE	El Toro Marine Corps Air Sta.	Orange	NVF	U.S. Navy W.S. Fallbrook Annex	San Diego
MCP	Camp Pendleton Fire Dept.	San Diego	NVH	Naval Hosp. Fire Dept., San Diego	San Diego
MCR	Marine Corps Recruit Depot San Diego	San Diego	NVI	Imperial Beach Naval Air Sta.	San Diego
MCS	Santa Ana Marine Corps Air Facility	Orange	NVL	Long Beach Naval Sta.	
MCT	U.S. Marine Corps, Twenty- Nine Palms	San Bernardino	NVM	Miramar Naval Air Station	San Diego
MDF	Modoc National Forest	No. Calif.	NVN	North Island Naval Air Sta.	San Diego
MGO	Morongo Valley C.S.D. Fire Dept.	San Bernardino	NVP	Naval Const. Batt. Port Hueneme	Ventura
MGY	Montgomery F.P.D., Chula Vista	San Diego	NVS	San Diego Naval Sta.	San Diego
MHB	Manhattan Beach Fire Dept.	Los Angeles	NVT	Naval Training Ctr. San Diego	San Diego
MNF	Mendocino National Forest	No. Calif.	NVU	Point Magu Naval Air Sta.	Ventura
MTB	Montebello Fire Dept.	Los Angeles	NVW	Seal Beach Naval Weapons Sta.	Orange
MTC	Montclair Fire Dept.	San Bernardino	NZF	North Zone, USFS Region 5	No. Calif.
MTO	Montecito Fire Dept.	Santa Barbara	OAP	Ontario Intl. Airport	San Bernardino
MRV	Monrovia Fire Dept.	Los Angeles	OCS	Oceanside Fire Dept.	San Diego
			OCT	Orcutt Fire Dist.	Santa Barbara
			OES	State Office of Emergency Serv.	Multi-County
			ORC	Orange County Fire Dept.	Orange
			ORG	Orange Fire Dept.	Orange
			OTO	Ontario Fire Dept.	San Bernardino

Jan. 4, 1980

FPS 420-1

FIRESCOPE AGENCY DESIGNATORS

ID	AGENCY	CO/LOC	ID	AGENCY	CO/LOC
OXD	Oxnard Fire Dept.	Ventura	SDC	San Diego Co. Fire Dept.	San Diego
PAS	Pasadena Fire Dept.	Los Angeles	SFS	Santa Fe Springs Fire Dept.	Los Angeles
PER	Perris Fire Dept.	Riverside	SGB	San Gabriel Fire Dept.	Los Angeles
PEN	Philco-Ford NASA Goldstone	San Bernardino	SHF	Shasta-Trinity Nat'l Forest	No. Calif.
PIN	Pinon Hills V.F.D.	San Bernardino	SJT	San Jacinto Fire Dept.	Riverside
PMS	Palm Springs Fire Dept.	Riverside	SLB	Seal Beach Fire Dept.	Orange
PNF	Plumas National Forest	No. Calif.	SMA	Santa Monica Fire Dept.	Los Angeles
POM	Pomona Fire Dept.	Los Angeles	SMC	San Marcos F.P.D.	San Diego
POW	Poway F.P.D.	San Diego	SMD	Sierra Madre Fire Dept.	Los Angeles
PSS	Mt. Pass V.F.D.	San Bernardino	SMR	Santa Maria Fire Dept.	Santa Barbara
PVE	Palos Verdes Estates	Los Angeles	SND	San Diego City Fire Dept.	San Diego
PVY	Pine Valley F.P.D.	San Diego	SNF	Sierra National Forest	No. Calif.
RAM	Ramona F.P.D.	San Diego	SNM	San Marino Fire Dept.	Los Angeles
RBW	Rainbow V.F.D.	San Diego	SNT	Santee F.P.D.	San Diego
RBX	Rubidoux F.P.D.	Riverside	SOL	Solana Beach F.P.D.	San Diego
RBD	Redondo Beach Fire Dept.	Los Angeles	SPA	Santa Paula Fire Dept.	Ventura
RED	Redlands Fire Dept.	San Bernardino	SPS	So. Pasadena Fire Dept.	Los Angeles
RHR	Rohr Corp. Fire Dept., Chula Vista	San Diego	SPV	Spring Valley F.P.D.	San Diego
RIA	Rialto Fire Dept.	San Bernardino	SPQ	Sequoia Nat'l Forest	No. Calif.
RIV	Riverside City Fire Dept.	Riverside	SRF	Six Rivers Nat'l Forest	No. Calif.
RSF	Rancho Santa Fe F.P.D.	San Diego	STA	Santa Ana Fire Dept.	Orange
RSP	Running Springs Fire Dept.	San Bernardino	STB	Santa Barbara City Fire Dept.	Santa Barbara
RVC	Riverside County Fire Dept.	Riverside	STF	Stanislaus Nat'l Forest	No. Calif.
SBC	Santa Barbara Co. Fire Dept.	Santa Barbara	STN	Stanton Fire Dept.	Orange
SBU	Univ. of Calif. Santa Barbara	Santa Barbara	SVG	Solvang V.F.D.	Santa Barbara
SCE	So. Calif. Edison Etiwanda	San Bernardino	SVY	Searles Valley F.P.D.	San Bernardino
SCL	San Clemente Fire Dept.	Orange	SZF	South Zone, USFS Region 5	So. Calif.
			TMU	Lake Tahoe Basin Mgmt. unit	No. Calif.
			TNF	Tahoe National Forest	No. Calif.
			TOR	Torrance Fire Dept.	Los Angeles
			TST	Tustin Fire Dept.	Orange
			TWP	Twenty-Nine Palms Fire Dept.	San Bernardino

7-4

Jan. 4, 1980

FPS 420-1

Jan. 4, 1980

FPS 420-1

FIREScope AGENCY DESIGNATORS

ID	AGENCY	CO/LOC	ID	AGENCY	CO/LOC
UPL	Upland Fire Dept.	San Bernardino			
VCV	Victorville F.P.D.	San Bernardino			
VEN	Ventura City Fire Dept.	Ventura			
VER	Vernon Fire Dept.	Los Angeles			
VNC	Ventura Co. Fire Dept.	Ventura			
VTa	Vista Fire Dept.	San Diego			
WCV	West Covina Fire Dept.	Los Angeles			
WDN	Woodlawn F.P.D.	San Diego			
WHI	Whittier Fire Dept.	Los Angeles			
WON	Wonder Valley V.F.D.	San Bernardino			
WST	Westminster Fire Dept.	Orange			
WWD	Wrightwood F.P.D.	San Bernardino			
YER	Yermo Fire Dept.	San Bernardino			
YVY	Yucca Valley F.P.D.	San Bernardino			

FIRE CONTROL HANDBOOK

5603 DUTY STATEMENTS

Chapter Outline

	ITEM	PAGE
5603	DUTY STATEMENTS.....	55
.1	GENERAL.....	55
a.	Management.....	55
b.	Fire Line Positions.....	56
.2	COMMAND FUNCTION.....	57
a.	Fire Boss.....	57
b.	Liaison Officer.....	59
	(1) Other agency fire or emergency.....	60
c.	Chief Fire Information Officer.....	61a
d.	Fire Information Officer.....	61b
e.	Safety Officer.....	62
f.	Assistant Fire Boss-Attack.....	64
g.	Assistant Fire Boss-Support.....	65
.3	ATTACK FUNCTION.....	66
a.	Zone Boss.....	66
b.	Line Boss.....	67
c.	Division Boss.....	68
d.	Sector Boss.....	69
e.	Falling Boss.....	70
f.	Dozer Boss.....	71
g.	Task Force Leader.....	72
h.	Hand Crew Coordinator.....	73
i.	Air Attack Manager.....	75a
j.	Air Attack Boss.....	75c
k.	Air Coordinator (AIRCO).....	75d
l.	Helicopter Manager.....	75f
m.	Heliport Manager.....	76
.4	PLANNING FUNCTION.....	78
a.	Plans Chief.....	78
b.	Communications Officer.....	79
c.	Intelligence Officer.....	80
d.	Recon.....	81
e.	Maps.....	83
f.	Resource Status Officer.....	83
g.	Message Center Operator.....	84
h.	Timekeeper.....	85

FIRE CONTROL HANDBOOK

.5	SERVICE FUNCTION.....	86
a.	Service Chief (Logistics Chief).....	86
b.	Ground Resource Manager.....	88
c.	Engine Manager.....	89
d.	Hand Crew Manager.....	90
e.	Dozer Manager.....	91
f.	General Transportation Manager.....	93
g.	Personnel Manager.....	94
h.	Service and Repair Manager.....	96
i.	Camp Manager.....	97
j.	Kitchen Manager.....	98
k.	Supply Manager.....	99
l.	Procurement Manager.....	101
m.	Distribution Manager.....	102
.6	FINANCE FUNCTION.....	103
a.	Finance Chief.....	103
b.	Finance Officer.....	104

(Handbook then goes to Page 107)

5603 DUTY STATEMENTS

.1 GENERAL

Fire organization structures were presented in the preceding chapter for *Initial Attack*, *Extended Attack*, and *Major Fires*. Fire line positions were identified in each of the structures.

Duty statements for each of these fire line positions follow, and are grouped according to the *Command*, *Attack*, *Planning*, *Service*, and *Finance* functions. Each includes a statement of authority and a detailed list of responsibilities that individuals fulfilling these positions will be held accountable for.

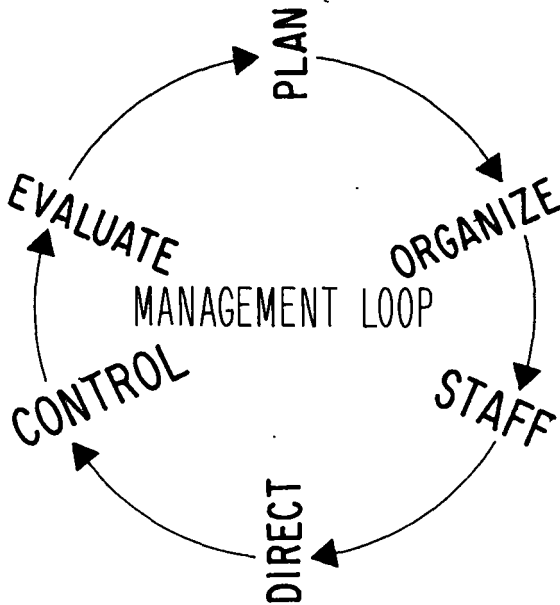
Individuals will be assigned fire line positions according to their qualifications and certifications without regard to civil service position.

a. MANAGEMENT

The words "*responsible for managing*" will be used in the duty statements to describe job responsibilities of fire line positions. Whenever these words are used, the individual will be responsible for planning, organizing, staffing, directing, controlling, and evaluating a fire organization function or sub-function, or a particular work activity.

Subsequently, the individual will be responsible for replanning, reorganizing, restaffing, etc., throughout the duration of the fire line assignment.

FIRE CONTROL HANDBOOK



b. FIRE LINE POSITIONS

A functional table of fire line positions follows:

COMMAND FUNCTION

- Fire Boss
- Liaison Officer
- Chief Fire Information Officer
- Fire Information Officer
- Safety Officer
- Asst. Fire Boss - Attack
- Asst. Fire Boss - Support

ATTACK FUNCTION

- Zone Boss
- Line Boss
- Division Boss
- Sector Boss
- Falling Boss
- Dozer Boss
- Task Force Leader
- Hand Crew Coordinator
- Air Attack Manager
- Air Attack Boss
- Air Coordinator (AIRCO)
- Helicopter Manager
- Helipoint Manager

FIRE CONTROL HANDBOOK

PLANNING FUNCTION

- Plans Chief
- Communications Officer
- Intelligence Officer
- Recon
- Maps
- Resource Status Officer
- Message Center Operator
- Timekeeper

SERVICE FUNCTION

- Service Chief (Logistics Chief)
- Ground Resource Manager
- Engine Manager
- Hand Crew Manager
- Dozer Manager
- General Transportation Manager
- Personnel Manager
- Service and Repair Manager
- Camp Manager
- Kitchen Manager
- Supply Manager
- Procurement Manager
- Distribution Manager

FINANCE FUNCTION

- Finance Chief
- Finance Officer

.2 COMMAND FUNCTION

a. FIRE BOSS

The *Fire Boss* has complete authority and responsibility for managing a fire control organization. He is responsible for developing overall fire strategy and for managing, supervising, and coordinating all *fire organization functions* for the most effective and efficient control of the fire. He:

- (1) Promptly informs the Ranger Unit *Emergency Command Center (ECC)* and his subordinate officers, upon taking *Command* of the fire.
- (2) Identifies the immediate and potential fire problem, considering exposures

FIRE CONTROL HANDBOOK

- and other values in path of the fire.
- (3) Provides the *ECC* with a "952".
 - (4) Formulates a fire control objective and a strategy designed to meet that objective.
 - (5) Assigns attack units to the most effective and efficient plan of attack.
 - (6) Briefs key personnel on strategy and tactics to be employed.
 - (7) Requests additional attack units as conditions may dictate.
 - (8) Coordinates the use of ground and air attack units.
 - (9) Has an alternate plan of attack if the first plan fails.
 - (10) Manages *span-of-control*.
 - *(11) Establishes a *fire organization structure* which is appropriate for the magnitude of the fire.
 - (12) Provides for information services.
 - (13) Designates function "lead" positions (*Function Leaders*) when more than one person is assigned to a fire line position.
 - (14) Develops an organizational structure that effectively integrates other fire protection agencies into a single organization.
 - (15) Establishes a *GHQ* when needed.
 - (16) Confers with *Ranger-in-Charge*, *GHQ*, *Command Staff*, and *Function Leaders*, as required.
 - (17) Sees that effective communications are established and maintained within the fire organization.
 - (18) Approves the final *Action Plan* prepared by the *Plans Chief*.
 - (19) Conducts briefings on strategy and *Action Plan* content with key attack personnel, *Plans Chief*, and others.
 - (20) Reviews and approves requests for

FIRE CONTROL HANDBOOK

- additional resources.
- (21) Constantly evaluates progress toward containment and control.
 - (22) Maintains a flexible fire organization adaptable to modification according to the requirements of the fire.
 - (23) Sees that all necessary records and reports are properly completed.
 - (24) Provides guidelines for orderly demobilization of personnel and equipment to the *Plans Chief*.
 - (25) Provides guidelines for orderly demobilization of supplies to the *Service Chief*.
 - (26) Approves the plans for demobilization prepared by the *Plans Chief* and *Service Chief*.

* This will have a significant effect upon the efficiency of the entire fire control organization. (Refer to *Fire Boss* checklists for *Initial Attack*, *Extended Attack* and *Major Fires* in Chapter 5602).

b. LIAISON OFFICER

The *Liaison Officer* is responsible for serving as *Liaison* between the CDF and participating agencies, and also between the agencies, i.e., U.S.F.S., Contract Counties, BLM, OES, CHP, Military, Industry, etc. He:

- (1) Arranges for an adequate *Liaison* staff.
- (2) Must know the various inter-agency agreements or mutual aid contracts.
- (3) Must be familiar with personnel, operations, and procedures of the participating agencies.
- (4) Must work with the *Plans Chief*, *Service Chief*, and others, as needed.
- (5) Keeps informed on the *Action Plan*.
- (6) Keeps agency representatives informed as to overall needs of personnel and equipment to meet the *Action Plan*.

FIRE CONTROL HANDBOOK

- (7) Keeps informed on progress toward containment and control of the fire.
- (8) Keeps informed as to needs, requirements, and problems of participating agencies.
- (9) Endeavors to effect a satisfactory solution of any problems with fire management and participating agencies.
- (10) Informs participating agency of joint strategy meetings.
- (11) Assists the *Fire Information Officer* in news releases to home units.

(1) OTHER AGENCY FIRE OR EMERGENCY

The CDF will send a qualified *Liaison Officer* whenever another agency requests assistance for fire control, floods, oil slicks, firemen strikes, etc. The CDF *Liaison Officer* is responsible to coordinate the activities of all CDF personnel and equipment engaged in the emergency for the other agency. He is responsible to the Regional Deputy State Forester for the safety, health, welfare, and performance of all CDF personnel and equipment. He:

- (a) Must know the various inter-agency agreements or mutual aid contracts.
- (b) Becomes familiar with the emergency organization structure and the chain of command of the other agency.
- (c) Must be familiar with personnel, operations, and procedures of the other agency.
- (d) Keeps informed on the current status of the emergency.
- (e) Keeps informed on the emergency *Action Plan*.
- (f) Keeps posted to the needs and projected plans of the other agency as they apply to CDF.
- (g) Coordinates the work assign-

ments of incoming CDF resources.

- (h) Keeps posted to the needs and projected plans of the other agency as they apply to CDF.
- (i) Sees that CDF personnel are properly fed and rested.
- (j) Reports twice daily at 0900 and 2100, or more often as the situation dictates, to the Region Emergency Command Center by telephone, and informs of:
 - (1) Emergency status.
 - (2) Condition of CDF personnel and equipment.
 - (3) Recommendations for relief.
 - (4) Injuries, unusual incidents, etc.
- (1) Submits a fire report to Region Office for CDF activity when:
 - (1) No Ranger Unit administrative personnel are assigned.
 - (2) Delegated this responsibility by Regional Office.

FIRE CONTROL HANDBOOK.

c. CHIEF FIRE INFORMATION OFFICER

The *Chief Fire Information Officer* is responsible for organizing, managing, supervising, and coordinating the information activities relating to a fire situation and providing for its timely flow to the media, public, fireline forces, and in-service CDF levels. He:

- (1) Establishes a system in accordance with guidelines contained in the Manual of Instructions, Information Handbook, and ECC Handbook.
- (2) Arranges for an adequate staff and necessary equipment and facilities.
- (3) Consults with *Fire Boss* and coordinates with others as needed.
- (4) Furnishes internal management information as required and requested.
- (5) Acts for *Fire Boss* in public relations matters.
- (6) Integrates information services with cooperating agencies.
- (7) Authorizes and approves the release of information pertaining to fatalities, serious injuries, confidential personnel matters, and law enforcement action in accordance with existing instructions.
- (8) Arranges interviews and tours for special officials and dignitaries.

FIRE CONTROL HANDBOOK

- (9) Briefs staff on special information requirements.
- (10) Obtains knowledgeable specialist, when appropriate.
- (11) Arranges for payment of expenses incurred by fire information function.
- (12) Provides for retention of information records and completes reports as required.
- (13) Submits to *Plans Chief* or *Demobilization Officer* the Demobilization Plan for personnel and equipment for the fire information function.

d. FIRE INFORMATION OFFICER

The *Fire Information Officer*, under direction of the *Chief Fire Information Officer*, is responsible for gathering and disseminating information about current fire situation to the public through various news media and in response to individual inquiries. He is also responsible for providing news of the fire and other general interest items to fire line forces and internal information as required and requested. When assigned, his specific information functions are:

FIRE CONTROL HANDBOOK

- (1) Notifies news media and wire services of the telephone number(s) of the fire information center, and the hours during which service will be provided.
- (2) Keeps news media informed of changes in fire status and control efforts.
- (3) Establishes communications and rapport with *Fire Boss* and consults with fire line forces and others as needed.
- (4) Coordinates with intelligence officer to exchange information.
- (5) Keeps fire data posted visually.
- (6) Keeps informed of fire developments.
- (7) Attends fire control strategy meetings.
- (8) Handles live and tape recorded interviews.
- (9) Arranges for fire line tours.
- (10) Photographs and documents fire action.
- (11) Works closely with cooperating agencies.

e. SAFETY OFFICER

The *Safety Officer* is responsible for detecting, eliminating or reducing hazardous conditions or procedures that may affect personnel safety, both on the fireline, and in *Base Camp* and *Spike Camps*. Only in instances where there is an immediate threat to the safety of personnel will he have authority to take

FIRE CONTROL HANDBOOK

direct corrective action. When such action is necessary, he shall inform the responsible supervisor and *Fire Boss* as soon as possible.

General

- (1) Coordinates with the *Camp Manager* for standby emergency medical treatment and transportation units.
- (2) Frequently inspects the fire line, *Base Camp*, and *Spike Camps*.
- (3) Contacts responsible supervisor and advises him of safety hazards needing correction.
- (4) Takes immediate steps to safeguard personnel if situation warrants.
- (5) Reports to the *Fire Boss* if a supervisor does not take steps to correct unsafe condition.
- (6) Investigates and reports on accidents causing serious injury or death.
- (7) Attends briefing sessions to learn of fire suppression plans.
- (8) Checks for violation of the California Industrial Safety Orders.
- (9) Sends a report to the local Ranger-in-Charge and Region Deputy regarding his findings with recommendations for improvement.

In-Camp

- (10) Inspects automotive equipment for use of chock blocks and safe driving practices.
- (11) Inspects vehicle fuel storage and delivery systems.
- (12) Inspects electrical systems.
- (13) Inspects camp layout for fire hazards.
- (14) Sees that flammable areas are posted with "No Smoking" signs.
- (15) Sees that in-camp housekeeping is properly maintained.
- (16) Inspects sanitary facilities.
- (17) Sees that sleeping areas are in safe areas.
- (18) Sees that personnel rest in a safe

FIRE CONTROL HANDBOOK

manner, not under or around vehicles.

- (19) Checks and coordinates with *Camp Manager* on arrangements for treating injuries.
- (20) Coordinates with *General Transportation Manager* and *Dozer Manager* to see that all equipment, especially hired equipment, has the required safety equipment, i.e. lights, canopy, seat belts, chock blocks, etc.

Fire line

- (21) Sees that personnel, including pick-up labor, are wearing and using appropriate safety equipment, i.e., hard hats, clothing, goggles, gloves, etc.
- (22) Inspects automotive equipment for use of chock blocks and safe driving practices.
- (23) Sees that personnel are riding in a safe manner on fire apparatus and using seat belts.
- (24) Sees that safety procedures are followed for dozer operations and *Helispots*.

f. ASSISTANT FIRE BOSS - ATTACK

The *Assistant Fire Boss (Attack)* is responsible for managing, supervising, and coordinating activities of personnel and equipment within the *Attack* function. He assists the *Fire Boss* with planning of strategy and is responsible for tactical action on the fire line. He:

- (1) Assists the *Plans Chief* with the development of the final *Action Plan*.
- (2) Sees that the *Action Plan* is implemented on the fire line.
- (3) Adjusts *Action Plan* to meet actual fire conditions.
- (4) Constantly evaluates progress toward containment and control.

FIRE CONTROL HANDBOOK

- (5) Keeps the *Fire Boss* informed on fire conditions.
- (6) Requests additional attack units needed to cope with the existing and anticipated fire problem.
- (7) Is located where the most effective supervision can be given to subordinates.
- (8) Coordinates all ground attack and air attack activities.
- (9) Manages *span-of-control*.
- (10) Coordinates servicing of attack units with *Assistant Fire Boss (Support)*.
- (11) Attends strategy meetings.
- (12) Performs special assignments as directed by the *Fire Boss*.
- (13) Acts as *Fire Boss* when so designated by the *Fire Boss*.
- (14) Coordinates demobilization of attack personnel and equipment with the *Assistant Fire Boss (Support)* as fire conditions permit.

g. ASSISTANT FIRE BOSS (SUPPORT)

The *Assistant Fire Boss (Support)* is responsible for managing, supervising, and coordinating activities of the *Planning*, *Service*, and *Finance* functions. He assists the *Fire Boss* with planning and is responsible for logistical aspects of the fire organization. He:

- (1) Assists the *Plans Chief* with the development of the final *Action Plan*.
- (2) Sees that the movement of personnel, equipment, supplies, and materials to and from the fire area are handled efficiently and effectively.
- (3) Sees that proper requests for personnel, equipment, supplies, services, and materials needed to support the fire organization are made through the Ranger Unit *Emergency Command Center*.

FIRE CONTROL HANDBOOK

- (4) Sees that adequate support facilities are provided for the fire organization.
- (5) Coordinates fire line servicing schedules with the Assistant Fire Boss (Attack).
- (6) Manages span-of-control.
- (7) Attends strategy meetings.
- (8) Acts as Fire Boss when so designated by the Fire Boss.
- (9) Coordinates demobilization of all fire organization functions with the Plans Chief and Service Chief.
- (10) Performs special assignments as directed by the Fire Boss.

.3 ATTACK FUNCTION

a. ZONE BOSS

The Zone Boss is responsible for managing a fire control organization for a geographical section of the fire perimeter. He is responsible for managing, supervising, and coordinating all fire organization functions for the most effective and efficient control of the fire within a Zone. He:

- (1) Sees that an Action Plan is prepared for the Zone for each shift under overall strategy established by the Fire Boss.
- (2) Approves the final Action Plan for the Zone.
- (3) Has an alternate plan of attack if the first plan fails.
- (4) Briefs key personnel on strategy and tactics.
- (5) Identifies the immediate and potential fire problem, considering exposures and other values in path of fire.
- (6) Assigns attack units to the most effective and efficient plan of attack.
- (7) Coordinates the use of ground and air attack units with the Air Attack Boss.

- (8) Constantly evaluates progress toward *containment* and *control*.
- (9) Keeps the *Assistant Fire Boss (Attack)* informed on fire conditions.
- (10) Requests additional attack units needed to cope with the existing and anticipated fire problem.
- (11) Manages *span-of-control*.
- (12) Attends strategy meetings.
- (13) Establishes a *Zone Fire Organization Structure* which is appropriate for the magnitude of the fire.
- (14) Sees that effective communications are established and maintained within the fire organization.
- (15) Coordinates demobilization of personnel and equipment and supplies with both *Assistant Fire Bosses*.

b. LINE BOSS

The *Line Boss* is responsible for managing, supervising, and coordinating activities of ground and air attack units in executing the strategy and tactics approved by the *Fire Boss*. He:

- (1) Implements the *Action Plan* on the fire line.
- (2) Sees that *Division* and *Sector Bosses* understand strategy and tactics to be employed.
- (3) Determines that all attack units have reported to their assigned areas.
- (4) Identifies the immediate and potential fire problem, considering exposures and other values in path of fire.
- (5) Continually reviews *Attack* action with *Division Bosses* to determine whether strategy and tactics prescribed will accomplish the objective.

FIRE CONTROL HANDBOOK

- (6) Adjusts attack units to accomplish all objectives in time allowed.
- (7) Coordinates the use of ground and air attack units with the *Air Attack Boss*.
- (8) Requests additional attack units needed to cope with the existing and anticipated fire problem.
- (9) Takes immediate action to cope with unanticipated conditions when conditions warrant, and advises his supervisor of changes in planned action as soon as possible.
- (10) Recommends future strategy and tactics and resource needs to his supervisor.
- (11) Manages *span-of-control*.
- (12) Attends strategy meetings.
- (13) Is responsible for safety and welfare of personnel on the fire line.

c. DIVISION BOSS

The *Division Boss* is responsible for managing, supervising, and coordinating activities of ground attack units in executing the strategy and tactics approved by the *Fire Boss* within a specified area of the fire. He:

- (1) Sees that *Sector Bosses* and Attack Unit Supervisors understand strategy and tactics to be employed.
- (2) Determines that all attack units have reported to their assigned areas.
- (3) Identifies the immediate and potential fire problem within his *Division*.
- (4) Continually reviews *Attack* action with *Sector Bosses* to determine whether strategy and tactics prescribed will accomplish the objectives.
- (5) Confers with *Line Boss* when

adjustments of ground attack units are necessary to accomplish objectives.

- (6) Keeps *Line Boss* informed on fire conditions and accomplishments.
- (7) Takes immediate action to cope with unanticipated conditions when conditions warrant, and advises *Line Boss* of changes in planned action as soon as possible.
- (8) Recommends future strategy and tactics and resource needs to the *Line Boss*.
- (9) Provides information to *Division Boss* on next shift.
- (10) Is responsible for safety and welfare of personnel on his *Division*.

d. SECTOR BOSS

The *Sector Boss* is responsible for managing, supervising, and coordinating activities of ground attack units in executing the strategy and tactics approved by the *Fire Boss* within a specified area of the fire. He:

- (1) Sees that attack units have sufficient lunches and drinking water.
- (2) Sees that *Attack Unit Supervisor* understand strategy and tactics to be employed.
- (3) Determines that attack units have reported to their assigned areas.
- (4) Identifies the immediate and potential fire problem within his *Sector*.
- (5) Continually evaluates *Attack* action of each ground attack unit to determine whether strategy and tactics prescribed are being carried out.

- (6) Confers with *Division Boss* when adjustments of ground attack units are necessary to accomplish objectives.
- (7) Keeps *Division Boss* informed on fire conditions and accomplishments.
- (8) Takes immediate action to cope with unanticipated conditions when conditions warrant, and advises *Division Boss* of changes in planned action as soon as possible.
- (9) Recommends future strategy and tactics, and resource needs to the *Division Boss*.
- (10) Provides information to *Sector Boss* on next shift.
- (11) Is responsible for safety and welfare of personnel on his *Sector*.

e. FALLING BOSS

The *Falling Boss* is responsible for managing, supervising, and coordinating activities of timber falling crews in falling and bucking trees for fire line construction and mop-up operations. He works for the *Sector Boss*, *Division Boss*, or *Line Boss* depending upon the scope of his assignment. He:

- (1) Sees that all power saws are in proper operating condition.
- (2) Sees that fuel and other supplies and equipment are on hand to perform the assignment.
- (3) Sees that falling crews have sufficient lunches and drinking water.
- (4) Obtains job instruction in detail from his supervisor.
- (5) Briefs personnel on details of job assignment.
- (6) Determines that all falling crews have reported to their assigned areas.
- (7) Sees that the assigned job is carried out within the intended

- time limits.
- (8) Keeps his supervisor informed of progress and completion of work assignments.
- (9) Recommends future resource needs to his supervisor.
- (10) Arranges for maintenance and repair of equipment assigned to him.
- (11) Keeps time of hired personnel and equipment, to be turned over to the *Timekeeper*.
- (12) Is responsible for safety and welfare of personnel under his supervision.

f. DOZER BOSS

The *Dozer Boss* is responsible for managing, supervising, and coordinating activities of bulldozers for fire line construction and holding action. He works for the *Sector Boss*, *Division Boss*, or *Line Boss* depending upon the scope of his assignment. He:

- (1) Sees that dozers are designated for fire line work, equipped with lights, serviced, and prepared for 24-hour duty.
- (2) Sees that all hired dozers are marked with identifying numbers.
- (3) Sees that personnel have sufficient lunches and drinking water.
- (4) Obtains job instructions in detail from his supervisor.
- (5) Briefs personnel on details of job assignment.
- (6) Determines that all personnel and equipment have reported to their assigned areas.
- (7) Sees that the assigned job is carried out within the intended time limits.
- (8) Keeps his supervisor informed of progress and completion of work assignments.

- (9) Maintains communications with dozers, line supervisor, and *Dozer Manager*.
- (10) Recommends future resource needs to his supervisor.
- (11) Coordinates with *Dozer Manager* on service and repairs of dozers and relief operators in time for the next shift.
- (12) Keeps time of hired personnel and equipment, to be turned over to the *Dozer Manager*.
- (13) Is responsible for safety and welfare of personnel under his supervision.

Note: A *Dozer Boss* should not be assigned more than 3 dozers. When there are 3 or less hired dozers on the fire, the *Dozer Boss* will also serve as *Dozer Manager*.

g. TASK FORCE LEADER

The *Task Force Leader* is responsible for managing, supervising, and coordinating activities of ground attack units for fire suppression tasks. He works for the *Sector Boss*, *Division Boss*, or *Line Boss* depending upon the scope of his assignment. He:

- (1) Sees that attack units are properly manned and equipped to do their assigned tasks.
- (2) Sees that attack units have sufficient lunches and drinking water.
- (3) Obtains job instruction in detail from his supervisor.
- (4) Briefs *Attack Unit Supervisors* on details of job assignment.
- (5) Determines that all attack units have reported to their assigned area.
- (6) Identifies immediate and potential fire problems within his assigned area.

- (7) Sees that the assigned job is carried out within the intended time limits.
- (8) Keeps his supervisor informed of progress and completion of work assignments.
- (9) Recommends future resource needs to his supervisor.
- (10) Is responsible for safety and welfare of personnel under his supervision.
- (11) Coordinates with *Engine Manager*, or other managers, on service and repair of equipment.
- (12) Sees that *Attack Unit Supervisors* check in-and-out with *Timekeeper*.
- (13) Reports to *Engine Manager*, or other *Managers*, in *Base Camp* depending on the type of ground attack units in his *Task Force*.
- (14) Keeps attack units together while traveling from one location to another.

The *Task Force Leader* is also responsible for coordinating the movement of a *Task Force* enroute to and from the fire. He:

- (1) Determines rest stops and feeding locations.
- (2) Establishes travel procedure for *Attack Unit Supervisors*.
- (3) Reports updated ETA's through channels.

g. HAND CREW COORDINATOR

The *Hand Crew Coordinator* may have an *Attack* assignment or he may report to the *Hand Crew Manager* in the *Service* function. For an *Attack* assignment, he is responsible for managing, supervising, and coordinating activities of hand crews for fire line construction, holding action, and mop-up operations. He works for the *Sector Boss*, *Division Boss*, or *Line Boss* depending upon the scope of his assignment. He:

- (1) Sees that hand crews are properly equipped to do their assigned tasks.
- (2) Sees that hand crews have sufficient lunches and drinking water.
- (3) Obtains job instruction in detail from his supervisor.
- (4) Briefs *Hand Crew Supervisors* on details of job assignment.
- (5) Determines that all hand crews have reported to their assigned areas.
- (6) Identifies immediate and potential fire problem within his assigned area.
- (7) Sees that the assigned job is carried out within the intended time limits.
- (8) Keeps his supervisor informed of progress and completion of work assignments.
- (9) Recommends future resource needs to his supervisor.
- (10) Is responsible for safety and welfare of personnel under his supervision.
- (11) Coordinates with *and Crew Manager* on service and repairs of equipment.
- (12) Sees that *Hand Crew Supervisors* check in-and-out with *Timekeeper*.
- (13) Reports to *Hand Crew Manager* in *Base Camp*.

When reporting to the *Hand Crew Manager*, the *Hand Crew Coordinator* is responsible for assisting in preparing hand crews for shift assignments and in their return from assignments. He:

- (1) Assists the *Hand Crew Manager* in assembling hand crews for the *Action Plan* and for demobilization.
- (2) Informs the *Hand Crew Manager* on status and needs of hand crews, i.e., requirements for feeding, rest, tools, transportation, sanitary facilities, medical attention, change of assignment or location, etc.

FIRE CONTROL HANDBOOK

- (3) Informs *Hand Crew Supervisor* of camp procedures and arrangements for feeding, rest, sanitary facilities, transportation, etc.
- (4) Is the *Liaison* contact for the respective custodial agency, i.e., CDC, CYA, etc.
- (5) Works closely with custodial personnel on disciplinary or other problems.
- (6) Sees that *Hand Crew Supervisors* check in-and-out with *Timekeeper*.

The *Hand Crew Coordinator* is also responsible for coordinating the movement of hand crews enroute to and from the emergency incident. He:

- (1) Determines rest stops and feeding locations.
- (2) Works closely with custodial personnel on disciplinary and other problems.
- (3) Establishes travel procedures for *Hand Crew Supervisors*.
- (4) Reports updated ETA's through channels.

i. AIR ATTACK MANAGER

This position is filled by an air attack specialist who is familiar with the capabilities of both fixed wing and rotary wing aircraft. Responsibilities include: Making recommendations on strategy and tactics to be employed; advising as to resources needed and coordinating its implementation once action plan has been developed; monitoring activities after implementation and keeping supervisor advised of progress and/or changes needed.

Duties:

- (1) Reviews all intended missions in advance.
- (2) Briefs *Air Attack Boss* on strategy and tactics to be employed.

FIRE CONTROL HANDBOOK

- (3) Sees that assigned air attack units are deployed in accordance with *Action Plan*.
- (4) Continually reviews line action with *Air Attack Boss* to determine whether strategy and tactics prescribed will accomplish the objectives.
- (5) Makes reconnaissance flights, as necessary, to determine the effectiveness of air attack action.
- (6) Adjusts air attack units to accomplish all objectives in time allowed.
- (7) Keeps supervisor informed of fire conditions and accomplishments.
- (8) Coordinates the use of air and ground attack units with the *Line Boss* or *Assistant Fire Boss (Attack)*, *Air Attack Boss* and all other attack personnel as necessary.
- (9) Consults with *Line Boss* on *Helispot* locations.
- (10) Recommends future strategy and tactics and resource needs to supervisor. (This can include coordination directly with the *Plans Chief* during the development of the air attack plan.)
- (11) Coordinates with the *Helicopter Manager* on the movement of personnel, equipment, and supplies by helicopter to and from the fire line.
- (12) Sees that adequate communications are provided for air attack units.
- (13) Coordinates with the *Air Base Manager*, *Helicopter Manager*, *RACO*, or *JAC* on aircraft needs and status, including flight hour limitations, rest periods, days off, etc.
- (14) Eliminates any interference by unauthorized aircraft.
- (15) Attends strategy meetings.
- (16) Sees that all Federal Aviation Agency safety regulations and CDF rules and regulations are followed.

FIRE CONTROL HANDBOOK

j. AIR ATTACK BOSS

This position is normally filled by an experienced *Airco* who is familiar with all procedures regarding the use of aircraft and can be called upon to perform some of the duties of the *Air Attack Manager* if one has not been assigned. Responsibilities include: providing overall coordination with the attack function on the ground; coordinating all ground-to-air communications thus allowing the *Airco* to devote full attention to the safe coordination of air traffic over the fire scene; receiving strategy information and tactical assignments from the ground supervisor and relaying them to the *Airco*; providing assignment status for the supervisor and making recommendations for needed changes if the tactical use is ineffective.

This position is designed to fit into the major fire strategy situation. There is also a need for this position when the *Airco's* workload reaches a point where air-to-ground coordination becomes a problem. At this time, filling the *Air Attack Boss* position can provide effective air attack and ground attack coordination.

There may be a need for additional aircraft on a rapidly expanding initial attack fire to provide communications, ground access information, situation status, mapping, etc., for the *Fire Boss* and/or *ECC*.

This position is designated as *Reconnaissance* until the position assumes air coordination duties (*Airco*) or ground-air tactical duties (*Air Attack*).

Duties:

- (1) Receives all tactical assignments for aircraft from supervisor.
- (2) Takes command upon arrival and relinquishes it upon departure by directly informing *Airco*.
- (3) Briefs *Airco* on strategy and tactics to be employed.
- (4) Analyzes the needs and effectiveness of the air attack strategy for transmittal to supervisor.

FIRE CONTROL HANDBOOK

- (5) Recommends future resource needs to supervisor.
- (6) Provides updated fire status information for supervisor and/or *ECC*.
- (7) Keeps supervisor informed as to progress and completion of assigned missions.
- (8) Provides communications between *Fire Boss* and *ECC* when necessary.
- (9) Arranges clearance with *Airco* for special flights over the fire area.
- (10) Eliminates interference by unauthorized aircraft.
- (11) Requests declaration of F.A.R. 91.91 in fire area, if needed, and rescinds when no longer needed.
- (12) Provides access information for ground units if requested.
- (13) Maps fire if requested.
- (14) Sees that adequate communications are provided for all air attack units.
- (15) Sees that all Federal Aviation Agency safety regulations and CDF rules and regulations are followed.

k. AIR COORDINATOR (AIRCO)

When the fire organization structure includes an *Air Attack Boss*, the *Airco* is primarily an air traffic controller whose mission is to maintain rigid control of all air traffic within the airspace over the fire scene. All flights of any nature are cleared by the *Airco* prior to entrance or exit from this controlled airspace. Tactical assignments for aircraft usage come through the *Air Attack Coordinator* which allows the *Airco* to monitor air-to-air communications channels only and eliminates the need to monitor ground traffic. Total concentration of effort to traffic control should result in a safer, more efficient operation with less orbit time for airtankers and/or helicopters while the *Airco* is occupied elsewhere.

FIRE CONTROL HANDBOOK

Duties:

- (1) Obtains job instructions in detail from supervisor.
- (2) Briefs pilots on details of job assignment, including target location, ETA on target, flight hazards, turbulent air, etc.
- (3) Sees that adequate communications are established between air attack units.
- (4) Assigns orbit areas and elevations.
- (5) Directs the tactical use of both airtankers and helicopters on the fire line.
- (6) Coordinates with *Air Attack Boss* on logistical use of helicopters and tactical use of air tankers to ensure that all missions are carried out in a safe manner.
- (7) Sees that the assigned job is carried out within the intended time limits.
- (8) Keeps supervisor informed of progress and completion of work assignments.
- (9) Notifies supervisor when air attack is not effective.
- (10) Recommends future resource need to supervisor.
- (11) Assists in coordinating activities of air attack units with ground attack units.
- (12) Keeps aware of the schedule and location of air attack units in flight, and their arrival times over the fire area.
- (13) Allows only one air attack unit over or near the target area at any given time.

- (14) Arranges for special approved flights over the fire area.
- (15) Makes reconnaissance flights and reports on conditions as requested by authorized personnel.
- (16) Eliminates any interference by unauthorized aircraft.
- (17) Declares F.A.R. 91.91 in fire area, if needed.
- (18) Sees that all Federal Aviation Agency safety regulations and CDF rules and regulations are followed.

1. HELICOPTER MANAGER

The *Helicopter Manager* is responsible for managing, supervising, and coordinating activities of helicopters used for the movement of personnel, equipment, and supplies to and from the fire line (logistical support) and tactical support such as reconnaissance and helitanker missions.

Duties:

- (1) Reviews all intended missions to select and order suitable helicopters.
- (2) Consults with *Service Chief* and *Air Attack Boss* to become familiar with fire control strategy and tactical suppression action for helicopters.
- (3) Coordinates with *Air Attack Boss* on tactical and logistical use of helicopters to ensure that missions will be performed safely.
- (4) Determines that adequate communications are established with all helicopters.
- (5) Briefs *Helicopter Manager* and pilots on the logistical aspects of the *Action Plan*.
- (6) Sees that helicopters are deployed in accordance with *Action Plan*.
- (7) Coordinates with *Air Attack Boss* or other attack personnel on the use of helicopters for logistical support of fire line requirements.

FIRE CONTROL HANDBOOK

- (8) Coordinates with *Air Attack Boss* and attack personnel on *Helispot* locations for logistical support.
- (9) Coordinates with *Air Attack Boss* on flight hour limitations.
- (10) Works closely with *Air Attack Boss* and *Resource Status Officer* on current status of helicopters and pilots.
- (11) Coordinates with *Ground Resource Manager*, *Air Attack Boss*, and *Service Chief* on movement of personnel and equipment by helicopter to and from the fire line.
- (12) Coordinates with *Supply Manager* to ensure that adequate supplies are available at the *Heliport*.
- (13) Coordinates with *Camp Manager* on arrangements for feeding, rest, sanitary facilities, etc., and advises *Heliport Manager*.
- (14) Sees that complete records of helicopter use and pilot hours are kept and turned over to the *Timekeeper*.
- (15) Sees that all Federal Aviation Agency safety regulations and CDF rules and regulations are followed.
- (16) Sees that helicopters and pilots are assembled at the prescribed time and location for demobilization.
- (17) Sees that helicopter pilots understand and comply with *Air Traffic Control* procedures in the fire area.

m. HELIPORT MANAGER

The *Heliport Manager* is responsible for managing, supervising, and coordinating the activities of a *Heliport* operation.

Duties:

- (1) Requests assistants to adequately staff his subfunction.
- (2) Briefs assistants as to safe practices, work assignments, and expected activities.
- (3) Inspects *Heliport* for conformance with established guidelines and regulations for *Heliports*.
- (4) Determines that *Heliport* and helicopter communications are adequate.
- (5) Assembles pilots at the prescribed time and location for briefing by *Helicopter Manager*.
- (6) Determines that helicopters are serviced and equipped to perform their assignments.
- (7) Meets and receives all personnel, equipment, and supplies entering the *Heliport*, and arranges for their proper disposition.
- (8) Obtains proper clearance prior to take off of any helicopters and sees that pilots understand and comply with traffic control procedures in the fire area.

FIRE CONTROL HANDBOOK

- (9) Orders helicopter fire fighting accessories, as requested, through the *Supply Manager*.
- (10) Obtains and prepares fire retardant chemicals for use by helicopters.
- (11) Relays coordinating information from *Air Attack Boss* and *Airco* to *Helicopter Manager*.
- (12) Has information available at all times on numbers and types of helicopters ready for use.
- (13) Advises *Helicopter Manager* on status of helicopters and pilots.
- (14) Keeps complete time records of helicopter use and pilot hours, to be turned over to the *Timekeeper*.
- (15) Advises pilots and assistants of arrangements for feeding, rest, sanitary facilities, etc.
- (16) Is responsible for enforcing all safety rules and regulations on *Heliport* operations.
- (17) Assembles pilots at the prescribed time and location for demobilization.

.4 PLANNING FUNCTION

a. PLANS CHIEF

The *Plans Chief* is responsible for managing, supervising, and coordinating activities within the *Planning* function. He is responsible for performing the duties, or sees that the duties are performed, of all positions not formally activated within his function.

Duties:

- (1) Evaluates all information necessary for planning control of the fire.
- (2) Sees that a record is maintained for all fire activities.
- (3) Informs *Fire Boss* of:
 - (a) probable fire behavior,
 - (b) progress toward control,
 - (c) deployment of forces, and
 - (d) available resources.
- (4) Prepares preliminary and final *Action Plan*.
- (5) Coordinates with *Fire Boss*, *Service Chief*, and others on *Action Plan* resolution and approval.
- (6) Assists in briefing of attack personnel.
- (7) Works closely with *Service Chief* to see that resource status is properly coordinated between the *Resource Status Officer* and the ground resource

- management sub-function.
- (8) Keeps *Line Boss* or *Zone Boss* informed of pertinent fire information gained through reconnaissance.
- (9) Designates sub-function "lead" positions within the *Planning* function when more than one person is assigned to a fire line position.
- (10) Sees that up-to-date fire status maps and resource status is maintained.
- (11) Attends strategy meetings.
- (12) Prepares preliminary and final *Demobilization Plan for Personnel and Equipment*.
- (13) Sees that fire report is prepared.

b. COMMUNICATIONS OFFICER

The *Communications Officer* is responsible for providing communication networks to carry out fire control strategy outlined by the *Plans Chief*. The Ranger Unit *Emergency Command Center (ECC)* is responsible for performing these duties until there is a need to establish this position on the fire. He:

- (1) Controls communications to assure maximum utilization, minimum interference, and safety.
- (2) Anticipates communication needs and requests necessary equipment as the fire situation expands.
- (3) Coordinates tactical fire nets for:
 - (a) ground attack,
 - (b) air attack,
 - (c) air-to-ground control,
 - (d) incoming attack units, and
 - (e) *Fire Boss* to *ECC*.
- (4) Adapts the communication system to topographical features.
- (5) Coordinates tactical fire nets on multiple fires to minimize net overload.
- (6) Assigns alternate means of communications (HT's, vehicles, etc.) to

- facilitate maximum net separation.
- (7) Coordinates with *Service Chief* on communication requirements:
 - (a) within *Base Camp*,
 - (b) between *Base Camp*, *Staging Areas* and *Spike Camps*, and
 - (c) between *Base Camp* and *ECC*.
- (8) Coordinates with *Service and Supply Manager* on his needs for *Radio Techs*.
- (9) Coordinates with *Resource Status Officer* on equipment communication inventories.
- (10) Coordinates with *Intelligence Officer* on *Attack* assignments to take full advantage of common radio frequencies.

c. INTELLIGENCE OFFICER

The *Intelligence Officer* is responsible for managing, supervising, and coordinating activities within the intelligence sub-function. He is responsible for performing the duties of all positions not formally activated with his sub-function. He:

- (1) Gathers, evaluates, and compiles intelligence into a usable form for fire planning.
- (2) Makes personal reconnaissance, if necessary, to familiarize himself with the terrain and location of the fire.
- (3) Sees that *Recon* and *Maps* personnel maintain up-to-date maps and information on fire status.
- (4) Sees that maps are prepared for attack personnel showing fire line work assignments.
- (5) Coordinates with *Communications Officer* on *Attack* assignments to take full advantage of common radio frequencies.
- (6) Interprets intelligence information and maps for *Plans Chief* and *Fire*

Boss and indicates:

- (a) fire projection,
 - (b) problem areas,
 - (c) possible line locations, and
 - (d) other pertinent information for planning strategy.
- (7) Assumes responsibility for weather information.
 - (8) Keeps informed on personnel and equipment status for *Attack* assignments through the *Resource Status Officer*.
 - (9) Prepares shift assignment sheets for *Action Plan*.
 - (10) Sees that fire status map board is properly maintained.
 - (11) Coordinates with *Fire Information Officers* to exchange information mutually important to each.
 - (12) Acts as *Plans Chief* when so designated by the *Plans Chief*.

d. RECON

Recon is responsible for gathering and transferring intelligence to the *Intelligence Officer* for fire planning and to attack personnel for immediate suppression efforts. He:

- (1) Confers with *Intelligence Officer* to determine:
 - (a) nature and location of assignment,
 - (b) method of scouting,
 - (c) priorities,
 - (d) type of information required,
 - (e) time limits for completion,
 - (f) intensity of reconnaissance, and
 - (g) method of reporting.
- (2) Secures and maintains necessary equipment and supplies to complete assignment.
- (3) Utilizes available and necessary means of transportation, i.e., 4-wheel

- drive vehicles, helicopter, airplane, foot, etc.
- (4) Makes personal reconnaissance of the fire for gathering of information and field mapping, including:
 - (a) fire perimeter,
 - (b) location of hot spots,
 - (c) rate of spread,
 - (d) topographic features,
 - (e) weather conditions,
 - (f) hazards, including escape routes and safe areas,
 - (g) unburned islands,
 - (h) line construction progress and location,
 - (i) progress of attack forces, and
 - (j) other items which may affect fire behavior or influence control actions.
- (5) Provides field maps and information to *Maps*.
- (6) Coordinates with *Maps* to maintain up-to-date information and maps on fire status, to include:
 - (a) fire perimeter,
 - (b) fire behavior, and
 - (c) status of control.
- (7) Furnishes information to *Resource Status Officer* regarding current location of attack units.
- (8) Is prepared to provide intelligence on history, present condition, and pre-planning of the fire operation.
- (9) Is prepared to identify access routes, *Division* and *Sector* boundaries, *Heliports*, and other pertinent land marks essential to the fire control operation.
- (10) Coordinates with *Maps* on checking final fire control maps for accuracy.

e. MAPS

FIRE CONTROL HANDBOOK

Maps is responsible for providing neat, accurate, and comprehensible maps for fire control uses. He:

- (1) Confers with *Intelligence Officer* to determine:
 - (a) nature and location of assignment,
 - (b) types, quantities, and priorities of maps required, and
 - (c) time limits for completion.
- (2) Obtains necessary supplies and equipment to complete assignment.
- (3) Obtains field maps and information from *Recon*.
- (4) Operates photocopiers, spirit and mimeograph duplicators, and telecopiers.
- (5) Coordinates with *Recon* in providing up-to-date maps on fire status.
- (6) Coordinates with *Recon* on checking final fire control maps for accuracy.
- (7) Assists *Resource Status Officer* in preparing maps for the resource status chart.
- (8) Provides other graphics as directed by *Intelligence Officer*.

f. RESOURCE STATUS OFFICER

The *Resource Status Officer* is responsible for managing, supervising, and coordinating activities within the resource status sub-function. He is responsible for performing the duties of all positions not formally activated within his sub-function. An essential quality of a *Resource Status Officer* is that he or someone under his direction can print neat, vertical, upper case, Gothic lettering so that there can be no misunderstanding as to its legibility. He:

- (1) Sets up, operates, and maintains a resource status system showing the availability of all personnel and equipment assigned to the fire, including:

FIRE CONTROL HANDBOOK

- (a) organization chart,
 - (b) current "on shift" resources,
 - (c) "previous shift" resources, and
 - (d) "next shift" resources being prepared.
- (2) Keeps posted a current list of personnel and equipment enroute to the fire with their ETA's.
 - (3) Attends strategy meetings to provide information on availability of personnel and equipment.
 - (4) Keeps records on shift assignments.
 - (5) Assists *Attack, Service, and Finance* personnel in compiling information on personnel and equipment required for their activities.
 - (6) Coordinates with *Communications Officer* on equipment communication inventories.
 - (7) Keeps *Intelligence Officer* informed on personnel and equipment status for attack assignments.
 - (8) Coordinates with *Engine, Hand Crew, Dozer, General Transportation, and Personnel Managers* on resource status.
 - (9) Coordinates with *Maps* to prepare map for resource status chart.
 - (10) Prepares Basic Facts Form, FI-2.
 - (11) Assists *Plans Chief* in preparing Resource Release Schedule for demobilization.
 - (12) Completes the "Overhead Activity", "Crew Activity", and "Vehicle Summary" portions of the Fire Report.

g. MESSAGE CENTER OPERATOR

The *Message Center Operator* is responsible for operating radio and telephone communication equipment for receiving and transmitting messages. He:

- (1) Requests messengers and equipment necessary to operate a Message Center.

FIRE CONTROL HANDBOOK

- (2) Supervises the work of messengers.
- (3) Operates in accordance with CDF operating procedure and F.C.C. rules and regulations.
- (4) Accurately writes out all messages and routes them to the proper individual in the most expedient manner.
- (5) Refers messages or information of a management or administrative nature to the *Resource Status Officer*.
- (6) Accepts only written and signed messages for transmittal.
- (7) Records messages and maintains a permanent chronological log including date, time, content, author, and recipient of message.
- (8) Completes and turns over all records to the *Resource Status Officer* at the close of the Message Center.
- (9) Performs other work as required by the *Resource Status Officer*.

h. TIMEKEEPER

The *Timekeeper* is responsible for maintaining an activity record for all personnel and equipment on the fire. He:

- (1) Registers all incoming and outgoing personnel and equipment.
- (2) Coordinates with *Engine, Hand Crew, Dozer, General Transportation, and Personnel Managers* on collecting and maintaining time records for hired personnel and equipment.
- (3) Determines identification and qualifications of personnel reporting for fire duty.
- (4) Acquaints all personnel with camp functions as they arrive and directs them to the appropriate ground resource management sub-function.
- (5) Keeps *Resource Status Officer* informed of new arrivals in camp.

- (6) Keeps emergency fire time record on proper forms and computes correct payroll.
- (7) Collects and maintains a daily record of allowable pay time for hired equipment.
- (8) Prepares lists of personnel and equipment as requested by *Resource Status Officer*.
- (9) Compiles and maintains a list of *Task Force* units assigned to the fire.
- (10) Distributes "Fire Assignment Evaluation", form FC121, to each permanent employee.
- (11) Completes and turns over all records to the *Resource Status Officer* at the close of the fire.

.5 SERVICE FUNCTION

a. SERVICE CHIEF (LOGISTICS CHIEF)

The *Service Chief* is responsible for managing, supervising, and coordinating activities within the *Service* function. He is responsible for performing the duties, or sees that the duties are performed, of all positions not formally activated within his function. He:

- (1) Provides adequate support facilities (*Base Camp, Staging Areas, & Spike Camps*) for the fire organization.
- (2) Sees that support facilities are properly located.
- (3) Provides personnel, equipment, supplies, services, and materials needed for the *Action Plan* and fire organization.
- (4) Participates in resolution of the final *Action Plan*.
- (5) Sees that resources needed for the *Action Plan* are provided.
- (6) Sees that the movement of personnel,

FIRE CONTROL HANDBOOK

equipment, supplies, and materials to and from the fire area are handled efficiently and effectively.

- (7) Sees that feeding is on time, according to the *Action Plan*.
- (8) Sees that sufficient maintenance items are on hand to service the total resources on the fire.
- (9) Sees that service and repair facilities are functioning properly.
- (10) Coordinates with *Line Boss* on servicing equipment on the fire line.
- (11) Sees that adequate *Heliport* and *Helispot* facilities are provided for logistical support.
- (12) Coordinates the movement of personnel, equipment, and supplies by helicopter to and from the fire line with *Air Attack Boss* and *Helicopter Manager*.
- (13) Coordinates with *Communications Officer* on a communication system:
 - (a) within *Base Camp*,
 - (b) between *Base Camp*, *Staging Areas*, and *Spike Camps*, and
 - (c) between *Base Camp* and *Emergency Command Center*.
- (14) Consults with *Assistant Fire Boss (Support)*, or *Fire Boss*, and *Plans Chief* to determine current and anticipated needs for resources and supplies.
- (15) Manages *span-of-control*.
- (16) Designates sub-function "lead" positions within the *Service* function when more than one person is assigned to a fire line position.
- (17) Attends strategy meetings.
- (18) Coordinates with *Plans Chief* on a *Demobilization Plan for Personnel and Equipment*.
- (19) Implements demobilization of personnel and equipment.

FIRE CONTROL HANDBOOK

- (20) Prepares and implements a *Demo-bilization Plan* for Supplies.
- (21) Sees that "Fire Assignment Evaluation", form FC121, has been completed by all personnel before release from the fire.

b. GROUND RESOURCE MANAGER

The *Ground Resource Manager* is responsible for managing, supervising, and coordinating activities within the ground resource management sub-function. He is responsible for performing the duties of all positions not formally activated within his sub-function. He:

- (1) Sees that personnel and equipment required for the *Action Plan* are ready and assembled at the prescribed time and location.
- (2) Sees that line overhead meet with appropriate ground attack units after briefing.
- (3) Sees that movement of personnel and equipment to and from the fire line are handled efficiently and effectively.
- (4) Coordinates with *Helicopter Manager* on movement of personnel and equipment by helicopter to and from the fire line.
- (5) Coordinates with *Service and Repair Manager* for adequate fuel, lubricant, and repair facilities for his sub-function.
- (6) Coordinates with *Service and Repair Manager* on proper servicing of equipment for his sub-function.
- (7) Coordinates with *Camp Manager* on arrangements for feeding, rest, sanitary facilities, medical attention, etc.
- (8) Coordinates with *Supply Manager* on arrangements for tools and other supplies for his sub-function.

FIRE CONTROL HANDBOOK

- (9) Advises *Engine, Hand Crew, Dozer, General Transportation and Personnel Managers* of arrangements for:
 - (a) movement of personnel and equipment by helicopter,
 - (b) service and repairs,
 - (c) feeding, rest, sanitary facilities, medical attention, etc., and
 - (d) tools and other supplies.
- (10) Sees that adequate records are kept on hired personnel and equipment.
- (11) Sees that hired equipment is properly inspected before and after use.
- (12) Sees that personnel and equipment are assembled at the prescribed time and location for demobilization.

c. ENGINE MANAGER

The *Engine Manager* is responsible for managing, supervising, and coordinating the activities of "off shift" engines and personnel so they are constantly available for fire duty. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Assembles engines required for the *Action Plan* at the prescribed time and location.
- (3) Sees that personnel have sufficient lunches and drinking water.
- (4) Sees that engines are properly serviced and equipped for the assignment.
- (5) Sees that engine supervisors meet with appropriate line overhead after briefing.
- (6) Makes arrangements for adequate water supply from local or other sources.
- (7) Advises personnel and *Task Force Leaders* of arrangements for:

FIRE CONTROL HANDBOOK

- (a) service and repair,
 - (b) feeding, rest, sanitary facilities, medical attention, etc., and
 - (c) tools and other supplies.
- (8) Arranges for prompt replacement of engines out of service.
 - (9) Works closely with *Resource Status Officer* to maintain current status of engines.
 - (10) Works closely with *Timekeeper* to see that all engines check in-and-out.
 - (11) Meets all new engines coming into camp.
 - (12) Serves as *Liaison* or engines from other agencies.
 - (13) Assembles engines and personnel at the prescribed time and location for demobilization.

d. HAND CREW MANAGER

The *Hand Crew Manager* is responsible for managing, supervising, and coordinating the activities of "off shift" hand crews so they are constantly available for fire duty. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Assembles hand crews required for the *Action Plan* at the prescribed time and location.
- (3) Sees that personnel have sufficient lunches and drinking water.
- (4) Sees that equipment is properly serviced for the assignment.
- (5) Sees that hand crews are properly equipped for the assignment.
- (6) Sees that hand crews meet with appropriate line overhead after briefing.
- (7) Arranges for prompt replacement of equipment out of service.

FIRE CONTROL HANDBOOK

- (8) Coordinates with *General Transportation Manager* when hired vehicles are used for transportation.
- (9) Advises *Hand Crew Supervisors* and *Hand Crew Coordinators* of arrangements for:
 - (a) movement of personnel and equipment by helicopter,
 - (b) service and repair,
 - (c) feeding, rest, sanitary facilities, medical attention, etc., and
 - (d) tools and other supplies.
- (10) Works closely with *Resource Status Officer* to maintain current status of hand crews.
- (11) Works closely with *Timekeeper* to see that all hand crews check in-and-out.
- (12) Meets all new hand crews coming into camp.
- (13) Serves as *Liaison* for CDC, CYA, EFF, Industry, etc., and hand crews from other agencies.
- (14) Works closely with custodial personnel on disciplinary and other problems.
- (15) Determines that rules, regulations, and procedures governing the use of hand crews are followed.
- (16) Assembles hand crews at the prescribed time and location for demobilization.

e. DOZER MANAGER

The *Dozer Manager* is responsible for managing, supervising, and coordinating the activities of "off shift" bulldozers, transports, service units, and operators so they are constantly available for fire duty. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Checks, or has checked by qualified persons, mechanical condition of dozers.

FIRE CONTROL HANDBOOK

- (3) Sees that dozers are designed for fire line work, serviced, equipped with lights, and prepared for 24-hour duty.
- (4) Rejects unsatisfactory equipment or inexperienced operators.
- (5) Sees that all hired dozers are marked with identifying numbers.
- (6) Assembles operators required for the *Action Plan* at the prescribed time and location.
- (7) Sees that operators have sufficient lunches and drinking water.
- (8) Sees that operators meet with appropriate line overhead after briefing.
- (9) Coordinates with *Dozer Boss*, *Line Boss*, or *Fire Boss* for servicing of dozers on the fire line.
- (10) Arranges for prompt replacement of dozers out of service.
- (11) Arranges for relief operators.
- (12) Advises *Dozer Boss* and operators of arrangements for:
 - (a) movement of personnel by helicopter,
 - (b) service and repair,
 - (c) feeding, rest, sanitary facilities, medical attention, etc., and
 - (d) supplies.
- (13) Works closely with *Resource Status Officer* to maintain current status of dozers and operators.
- (14) Serves as *Liaison* for hired personnel and equipment.
- (15) Works closely with *Timekeeper* to see that CDF operators check in-and-out.
- (16) Sees that all records, including FC-100, FC-33B, and SPO's for hired personnel and equipment are completed and turned over to the *Timekeeper*.

- (17) Checks, or has checked by qualified persons, the mechanical condition of each hired dozer prior to release.
- (18) Assembles operators at the prescribed time and location for demobilization.

Note: A Dozer Manager should be designated when 4 or more hired dozers are on the fire.

f. GENERAL TRANSPORTATION MANAGER

The *General Transportation Manager* is responsible for managing, supervising, and coordinating the activities of "off shift" support vehicles and drivers so they are constantly available for fire duty. Support vehicles include agency and rented pickups, sedans, stakesides, buses, nurse tankers, National Guard vehicles, etc. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Obtains and maintains proper types and amounts of motorized vehicles as required by the fire organization.
- (3) Operates a "Motor Pool" to furnish ground transportation of all types.
- (4) Checks mechanical condition of hired vehicles.
- (5) Sees that vehicles are adequate to perform assignment.
- (6) Rejects unsatisfactory vehicles or inexperienced drivers.
- (7) Assembles vehicles and drivers required for the *Action Plan* at the prescribed time and location.
- (8) Sees that drivers have sufficient lunches and drinking water.
- (9) Sees that vehicles are properly serviced.
- (10) Sees that drivers meet with appropriate line overhead and "on shift" resources after briefing.
- (11) Arranges for prompt replacement of vehicles out of service.

FIRE CONTROL HANDBOOK

- (12) Arranges for relief drivers.
- (13) Advises drivers of arrangements for:
 - (a) service and repair,
 - (b) feeding, rest, sanitary facilities, medical attention, etc., and
 - (c) supplies.
- (14) Works closely with *Resource Status Officer* to maintain current status of vehicles and drivers.
- (15) Meets all new hired vehicles and drivers coming into camp.
- (16) Serves as *liaison* for hired vehicles and drivers.
- (17) Maintains time records for hired vehicles and drivers.
- (18) Sees that all records, including FC-100, FC-33B, and SPO's for hired vehicles and drivers are completed and turned over to the *Timekeeper*.
- (19) Arranges for inspection of hired vehicles for mechanical condition prior to release.
- (20) Assembles hired vehicles and drivers at the prescribed time and location for demobilization.

g. PERSONNEL MANAGER

The *Personnel Manager* is responsible for managing, supervising, and coordinating activities of "off shift" line overhead so they are constantly available for fire duty. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Assembles line overhead required for the *Action Plan* at the prescribed time and location.
- (3) Sees that line overhead have sufficient lunches and drinking water.
- (4) Sees that line overhead meet with appropriate attack units.

FIRE CONTROL HANDBOOK

- (5) Coordinates with *General Transportation Manager* on transportation needs.
- (6) Meets all new line overhead coming into camp.
- (7) Advises line overhead of arrangements for:
 - (a) movement of personnel by helicopter,
 - (b) feeding, rest, sanitary facilities, medical attention, etc., and
 - (c) supplies.
- (8) Works closely with *Resource Status Officer* to maintain current status of line overhead.
- (9) Works closely with *Timekeeper* to see that line overhead check in-and-out.
- (10) Assembles line overhead at the prescribed time and location for demobilization.

h. SERVICE AND REPAIR MANAGER

The *Service and Repair Manager* is responsible for managing, supervising, and coordinating the repair of agency vehicles and the service of all motorized equipment on the fire, with the exception of aircraft. He is responsible for performing the service and repair duties of all positions not formally activated within his service and repair sub-function. He:

- (1) Consults with *Service Chief* to determine service and repair requirements for the fire organization.
- (2) Arranges for sufficient fuel and lubrication service units with operators to service all equipment on the fire, except aircraft.
- (3) Arranges for sufficient *Radio Techs* to repair radio communication equipment.
- (4) Establishes service and repair facilities at *Base Camp* to perform normal service and make minor repairs.
- (5) Orders and maintains adequate supplies of fuel, lubricant, and common replacement parts from *Supply Manager*.
- (6) Coordinates with *Ground Resource Manager* on service and repair of equipment.
- (7) Assists *Ground Resource Manager* with inspection of hired equipment when requested.
- (8) Sees that vehicles in "Motor Pool" are conditioned, serviced, and ready for assignment.

FIRE CONTROL HANDBOOK

- (9) Provides for the maintenance and repair of special equipment, i.e., generators, power saws, compressors, etc.
- (10) Provides *Communications Officer* with *Radio Techs* when needed.
- (11) Sees that delivery of fuel and lubricants are recorded.
- (12) Sees that repairs and parts used are recorded.
- (13) Establishes a preventive maintenance inspection system at *Base Camp* and *Spike Camps* for vehicles coming "off shift".
- (14) Sees that safe practices are followed in all activities under his jurisdiction.
- (15) Sees that personnel and equipment under his supervision are assembled at the prescribed time and location for demobilization.

i. CAMP MANAGER

The *Camp Manager* is responsible for managing, supervising, and coordinating activities within the camp management sub-function to properly feed, rest, equip, and ready personnel for fire duty. He is responsible for performing the duties of all positions not formally activated within the camp management sub-function. He:

- (1) Sets up *Base Camp* and *Spike Camps* as outlined by *Service Chief*.
- (2) Sees that electrical system (generator and extension cords) are safe and meet the requirements of California Industrial Safety Orders.
- (3) Organizes the operation of the kitchen to meet the demands of the *Action Plan*.
- (4) Plans and organizes feeding schedules as outlined by *Service Chief*.
- (5) Arranges for adequate sanitary facilities.

FIRE CONTROL HANDBOOK

- (6) Establishes safe and proper rest areas.
- (7) Establishes *Medical Services* for treatment of injuries.
- (8) Sees that identification signs are posted on all camp facilities.
- (9) Orders sufficient subsistence and supplies from *Supply Manager*.
- (10) Determines that all aspects of *Base* and *Spike Camps* are operated properly.
- (11) Coordinates with *Ground Resource Manager* on arrangements for rest, feeding, sanitary facilities, medical service, etc.
- (12) Coordinates with *Safety Officer* on arrangements for treating injuries.
- (13) Acts as *Service Chief* when so designated by the *Service Chief*.
- (14) Keeps informed on mobilization and demobilization of resources from *Service Chief*.
- (15) Reduces camp subsistence and supplies commensurate with demobilization.
- (16) Supervises the dismantling of *Base* and *Spike Camps* and sees that all areas are left in proper condition.
- (17) Coordinates with *Supply Manager* to see that inventories of subsistence and supplies are returned to *Supply*.

j. KITCHEN MANAGER

The *Kitchen Manager* is responsible for managing, supervising, and coordinating activities for the entire operation of the kitchen facility. He:

- (1) Assists in organizing the kitchen facility.
- (2) Requests assistants and crews to adequately staff his sub-function.
- (3) Supervises the continuous activity of the kitchen.

FIRE CONTROL HANDBOOK

- (4) Supervises the kitchen cooks and crew.
- (5) Directs food preparation and service.
- (6) Supervises the dishwashing and kitchen maintenance.
- (7) Assigns shifts to cooks and kitchen crews.
- (8) Keeps inventory of food stocks and kitchen supplies.
- (9) Orders food and kitchen supplies through *Camp Manager*.
- (10) Arranges for lunches to be ready at the required time.
- (11) Sees that kitchen equipment and mess gear are properly cleaned and sanitary at all times.
- (12) Is responsible for safety of personnel under his supervision.
- (13) Assists *Camp Manager* in demobilization of supplies and subsistence.

k. SUPPLY MANAGER

The *Supply Manager* is responsible for managing, supervising, and coordinating activities within the supply sub-function to order and distribute all supplies required for the fire. He is responsible for performing the duties of all positions not formally activated within his sub-function. He:

- (1) Maintains a close working relationship with the Ranger Unit *Service Center*.
- (2) Establishes time limits and schedules for placing orders from the following personnel:
 - (a) *Ground Resource Manager*
 - (b) *Helicopter Manager*
 - (c) *Service and Repair Manager*
 - (d) *Camp Manager*
- (3) Obtains supply orders from these personnel.
- (4) Develops and maintains a supply circuit.

FIRE CONTROL HANDBOOK

- (5) Sees that pick up and delivery of all supplies is properly handled.
- (6) Coordinates with the *Camp Manager* for the location of supply points, their orderly arrangement, and timely movement of supplies to avoid congestion in the *Base Camp* complex.
- (7) Keeps informed on overall supply availability, time requirements, and transportation needs.
- (8) Evaluates supply requirements in relation to in-camp inventories to assume efficient distribution and minimize supply outages.
- (9) Develops a paperwork processing system which expedites:
 - (a) supply ordering,
 - (b) supply receipt,
 - (c) invoice payment,
 - (d) inventory review,
 - (e) informational correspondence,
 - (f) instructional directives, and
 - (g) filing.
- (10) Works closely with *Finance Chief* on financial controls and *Emergency Fund* expenditures.
- (11) Reduces supply orders to match needs during demobilization.
- (13) Assists the supply demobilization team in:
 - (a) reconciling overages,
 - (b) recording excess supply transfers,
 - (c) maintaining stock security, and
 - (d) other services necessary for the orderly processing of supplies immediately preceding camp closure.
- (14) Assists *Service Chief* in preparing a *Demobilization Plan* for *Supplies*.
- (15) Assists with implementing the *Demobilization Plan* for disposition supplies at the close of camp.

FIRE CONTROL HANDBOOK

1. PROCUREMENT MANAGER

The *Procurement Manager* is responsible for managing, supervising, and coordinating the procurement of supplies needed for the fire control organization. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Obtains supply orders from the *Supply Manager*.
- (3) Checks all orders for completeness.
- (4) Prepares combined orders.
- (5) Places orders for supplies through the Ranger Unit *Service Center* or other supply coordinator as designated by the *Supply Manager*.
- (6) Establishes a record and documentation system to:
 - (a) log orders placed,
 - (b) log supplies received, and
 - (c) preclude the possibility of duplicate ordering.
- (7) Assists the *Supply Manager* in developing and maintaining a supply circuit.
- (8) Keeps *Supply Manager* informed on:
 - (a) supply availability,
 - (b) projected delivery times, and
 - (c) transportation needs.
- (9) Works closely with the *Distribution Manager* to determine:
 - (a) what has been ordered,
 - (b) who requested the supplies, and
 - (c) how to promptly transport the supplies to the point of need.
- (10) Works closely with *Finance Chief* and *Distribution Manager* on matters dealing with:
 - (a) invoice payment,
 - (b) shipments due in,
 - (c) delays, etc.
- (11) Assists *Supply Manager* with demobilization of the *Supply* operation.

FIRE CONTROL HANDBOOK

m. DISTRIBUTION MANAGER

The *Distribution Manager* is responsible for managing, supervising, and coordinating the movement of supplies to the point of need with minimum handling. He:

- (1) Requests assistants to adequately staff his sub-function.
- (2) Works closely with the *Procurement Manager* to determine:
 - (a) *what* has been ordered,
 - (b) *who* requested the supplies,
 - (c) *who* is to receive the items, and
 - (d) exactly *where* they are to be stored.
- (3) Consults with *Supply Manager* in overall planning and manner of supply distribution.
- (4) Establishes a supply point in close proximity to high use camp functions, i.e., kitchen.
- (5) Arranges supplies in a configuration conducive to proper:
 - (a) handling,
 - (b) storage,
 - (c) distribution,
 - (d) security, and
 - (e) easy inventory.
- (6) Establishes a record and documentation system which clearly shows:
 - (a) *what* is on hand,
 - (b) *what* is on order and due-in,
 - (c) *who* is to receive the items, and
 - (d) exactly *where* they are to be stored.
- (7) Maintains property records and holds in temporary files all Property Lost or Damaged Reports (F-11) for submission to *Supply Manager* upon close of the camp.

FIRE CONTROL HANDBOOK

- (8) Maintains and repairs fire line tools and equipment.
- (9) Advises *Supply Manager* immediately of excessive losses.
- (10) Organizes and directs a search, when practical, of areas when losses have occurred.
- (11) Assists *Supply Manager* with demobilization of the *Supply* operation.

.6 FINANCE FUNCTION

a. FINANCE CHIEF

The *Finance Chief* is responsible for managing, supervising, and coordinating all fiscal services required to support the fire organization. He:

- (1) Serves as fiscal advisor to the *Fire Boss* and others as required.
- (2) Serves as fiscal advisor to the *Fire Boss* on large fires within Contract Counties.
- (3) Keeps the *Fire Boss* informed of broadly estimated fire costs.
- (4) Monitors and counsels *Fire Boss*, and others, on expenditures of *Emergency Fund*.
- (5) Works closely with *Plans Chief* and *Service Chief* on matters pertaining to financial controls and business management.
- (6) Participates in resolution of the final *Action Plan*.
- (7) Advises and assists timekeeping, supply, ground resource management, and other sub-functions on proper preparation of financial documents.
- (8) Assigns *Finance Officer* to timekeeping, supply, ground resource management, and other sub-functions, as needed, to assist in the preparation of financial documents for purchase of

FIRE CONTROL HANDBOOK

supplies, materials, services, and transportation.

- (9) Handles adverse damage claims.
- (10) Coordinates expenditures for fire suppression efforts with other agencies on *Joint Fires*.
- (11) Works closely with BLM, or other agencies, when they will be reimbursing the CDF for a portion of the fire suppression costs.

b. FINANCE OFFICER

The *Finance Officer* is responsible for assisting the *Finance Chief* with fiscal services required to support the fire organization. He:

- (1) Performs duties delegated by the *Finance Chief*.
- (2) Works in *Finance* function or time-keeping, supply, ground resource arrangement, etc., as required.
- (3) Prepares AO-40, FC-42, and other financial forms.
- (4) Handles adverse damage claims.

(Handbook now goes to Page 107)

- (8) Maintains and repairs fire line tools and equipment.
- (9) Advises *Supply Manager* immediately of excessive losses.
- (10) Organizes and directs a search, when practical, of areas when losses have occurred.
- (11) Assists *Supply Manager* with demobilization of the *Supply* operation.

.6 FINANCE FUNCTION

a. FINANCE CHIEF

The *Finance Chief* is responsible for managing, supervising, and coordinating all fiscal services required to support the fire organization. He:

- (1) Serves as fiscal advisor to the *Fire Boss* and others as required.
- (2) Serves as fiscal advisor to the *Fire Boss* on large fires within Contract Counties.
- (3) Keeps the *Fire Boss* informed of broadly estimated fire costs.
- (4) Monitors and counsels *Fire Boss*, and others, on expenditures of *Emergency Fund*.
- (5) Works closely with *Plans Chief* and *Service Chief* on matters pertaining to financial controls and business management.
- (6) Participates in resolution of the final *Action Plan*.
- (7) Advises and assists timekeeping, supply, ground resource management, and other sub-functions on proper preparation of financial documents.
- (8) Assigns *Finance Officer* to timekeeping, supply, ground resource management, and other sub-functions, as needed, to assist in the preparation of financial documents for purchase of

FIRE CONTROL HANDBOOK

supplies, materials, services, and transportation.

- (9) Handles adverse damage claims.
- (10) Coordinates expenditures for fire suppression efforts with other agencies on *Joint Fires*.
- (11) Works closely with BLM, or other agencies, when they will be reimbursing the CDF for a portion of the fire suppression costs.

b. FINANCE OFFICER

The *Finance Officer* is responsible for assisting the *Finance Chief* with fiscal services required to support the fire organization. He:

- (1) Performs duties delegated by the *Finance Chief*.
- (2) Works in *Finance* function or time-keeping, supply, ground resource arrangement, etc., as required.
- (3) Prepares NR-40, FC-42, and other financial forms.
- (4) Handles adverse damage claims.



FIRE CONTROL HANDBOOK

5604 OPERATING GUIDES

ITEM	PAGE
5604 OPERATING GUIDES.....	111
.1 GENERAL.....	111
.2 COMMAND FUNCTION.....	111
a. Estimating Guide.....	111
b. Overhead Briefing Outline.....	112
.3 ATTACK FUNCTION.....	113
a. Ground Attack.....	113
(1) Engines.....	113
(a) Types and Hose Complements..	114
(b) Water Use Hand Signals.....	117
(c) Water Usage and Friction Loss Chart.....	118
(2) Dozers.....	119
(a) Line Construction Chart.....	119
(b) Dozer Hand Signals.....	120
(3) Hand Crews.....	121
(a) Line Construction Capabilities.....	121
(b) Attack Assignments.....	122
b. Air Attack.....	124
(1) General.....	124
(2) Airtankers.....	125
(a) Utilization.....	125
(b) Regional Air Coordination (RACO).....	127
(c) Joint Air Coordination	127
(d) Types and Capabilities.....	128
(e) Drop Patterns.....	129
(f) Attack.....	129
(g) Safety.....	129
(h) Adverse Damage Claims.....	131
(3) Helicopters.....	131
(a) Helitack Crews.....	131
(b) Utilization.....	132
(c) Night Flying Restrictions...	134
(d) Types and Capabilities.....	135
(e) Hand signals.....	136
(f) Heliport (Example).....	137
(g) Helispot (Example of location and size).....	138

FIRE CONTROL HANDBOOK

c.	Travel Procedure and ETA's.....	140
d.	Communications.....	140
	(1) CDF Clear Text Words & Phrases..	140
	(2) State Net Mobile Relays.....	142c
	(3) Phonetic Alphabet.....	143a
	(4) Car-to-Car Frequencies.....	143a
	(5) Communication Guide.....	143b
	(a) Mobile Relay Station.....	143b
	(b) Car-to-Car.....	143c
	(c) Handie-Talkie Net.....	143c
	(d) State Net.....	143c
	(e) Region Nets.....	144a
	(f) Local Nets.....	144b
	(6) Radio Identification Plan.....	144c
	(a) Employee Responsibility.....	147
	(b) Procedure.....	148
	(c) Policy.....	149
e.	Area Perimeter Table.....	153
f.	Aircraft Crashes.....	154
g.	Special Manning Patterns.....	155
.4	PLANNING FUNCTION.....	158
a.	Plans-Function Time-Schedule.....	158
b.	24-Hour Activity Schedule.....	159
c.	Fire Behavior Guides.....	160
	(1) Potential Spread of Fire in Relation to Relative Humidity, Wind, and Slope.....	160
	(2) Rate of Spread Guide.....	161
	(3) General Rules-of-Thumb.....	161
d.	Fire Control Map Symbols.....	162
e.	Fire Control Map (Sample).....	163
f.	Basic Fact Form, FI-2.....	164
.5	SERVICE FUNCTION.....	164
a.	Support Facilities.....	164
	(1) Types.....	164
	(a) Base Camp.....	164
	(b) Spike Camp.....	164
	(c) Staging Areas.....	165
	(2) Site Selection.....	165
	(3) Physical Arrangement.....	166
b.	Conservation Camp Crews.....	168
c.	Time Schedule.....	169b
d.	24-Hour Activity Schedule.....	169c
.6	FINANCE FUNCTION.....	169d
a.	Emergency Fire Suppression Fund.....	169d
	(1) Expenditure Authorization.....	170

FIRE CONTROL HANDBOOK

(2) Conditions for Use.....	170
(3) Proper Expenditures.....	172
b. Managing Base Camp/Staging Area	
Materiel Purchased From Emergency	
Fund.....	175
c. Sub-Purchase Orders (NR-40).....	176
(1) Instruction and Preparation.....	177a
(2) Sample SPO for Meals.....	177b-d
(3) Sample SPO for Lodging.....	179
d. Travel Expense Claim	
(Std. Form 262).....	182
(1) Instruction and Preparation.....	182
(2) Sample Travel Expense Claim	
(to be printed).....	182
e. Form FC-42 "Time Sheet and Pay Vouch	
Short Term-Non Civil Service"	
(1) Purpose.....	183
(2) FC-42 Preparation.....	183
(a) Special Instructions.....	183
(b) Hiring Procedure.....	184
(c) Classification and Rate of	
Pay.....	185
(d) Daily Timekeeping Procedure.	186
(e) Completion and Processing...	187
(3) Annual Wage Rate Schedule.....	189
f. Suppression Cost Estimation.....	190

(Handbook then goes to Page 199,
5605 NON-CDF PERSONNEL
AND EQUIPMENT)



5604 OPERATING GUIDES

.1 GENERAL

Fire control requires a broad knowledge of many subjects which facilitate actions on fires. The amount of details involved in these subjects are too monumental for anyone to retain in a mental "file."

These details are referred to as "operating guides" and are presented in this chapter in the form of charts, tables, rules-of-thumb, and written instruction. These operating guides are intended to assist personnel in fire control operations.

Operating guides are presented for the *Command, Attack, Planning, Service, and Finance* functions.

.2 COMMAND FUNCTION

a. ESTIMATING GUIDE

When it is evident that a fire will escape or has escaped *Initial Attack* forces, quickly obtain the best information available on location of fire, fuels, weather conditions, travel routes, communications, and location and availability of firefighting forces, including personnel and equipment.

(1) ESTIMATING SIZE OF JOB

- (a) Draw a map of the present edge of the fire.
- (b) Draw the estimated perimeter at time of attack. Plan for sufficient reinforcements.
- (c) Take into account on rate of spread:
 - Slopes.
 - Exposure.
 - Fuels.
 - Winds.
 - Barriers.
 - Time of day.
 - Time before arrival of additional attack units (Routes of travel).

FIRE CONTROL HANDBOOK

(2) PLANNING ATTACK

1. Divide perimeter into
Sectors and Divisions.
2. Decide where to place
control lines.
3. Decide order of importance.
4. Method of line construction.

(3) ESTIMATING NEEDS, BY SECTORS AND DIVISIONS

- (a) Line overhead.
- (b) Ground attack units.
- (c) Air attack units.
- (d) Other equipment, e.g., nurse
tankers, portable pumps, recon
vehicles. etc.
- (e) Time of arrival for line over-
head, attack units, and other
equipment.
- (f) Safety.

b. OVERHEAD BRIEFING OUTLINE

(1) ORIENTATION

General Picture of Fire.

Maps (location of fire,
topography, fuels.).

History (history of fire to
date, including status of
control).

Situation (fire behavior,
weather, values at stake).

Action plan, including
alternate plans.

Control Action now in effect.

Status of present control.

Rates of line construction.

Problems of line holding in
fuel types.

FIRE CONTROL HANDBOOK

What needs to be done.

General plan to accomplish.

Local problems and use of
specialized equipment.

Mop-Up required in different
fuel types.

Sources of personnel and local
customs of supervising crews.

(2) JOB ASSIGNMENT

Size of jobs.

Location of jobs.

Method of operation (strategy and
general tactics).

(3) SPECIAL SAFETY FEATURES

General Safety precautions.

Specific dangers to watch for.

(4) RESOURCES ASSIGNED

Overhead

Ground attack units

Air attack units

Communication equipment

Other equipment, i.e. recon
vehicles, portable pumps, etc.

Reserves.

(5) SERVICE ARRANGEMENTS

Transportation (foot, horse,
vehicle, plane).

Communication facilities and schedules.

Supply arrangements, present and
immediate future.

First aid facilities.

(6) QUESTIONS REGARDING ASSIGNMENT

.3 ATTACK FUNCTION

a. GROUND ATTACK

(1) ENGINES

FIRE CONTROL HANDBOOK

(a) TYPES AND HOSE COMPLEMENTS

No. 1 Heavy Conventional

Class	Heavy
Seating	6 person
Drive Type	Conventional
Winch	No Tank Ca
Tank Capacity	500 gallons
Midship Pump Volume	300 GPM @ 150 psi
Midship Pump Pressure	50 GPM @ 475 psi
Booster Pump Volume	85 GPM @ 150 psi
Booster Pump Pressure	40 GPM @ 275 psi
Gross Weight	17,000 lbs.

1200' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
100' of 1-1/2" cotton jacket fire hose (hotline)
300' of 3/4" booster hose

No. 4 Medium 4-Wheel drive

Class	Medium
Seating	5 person
Drive Types	4-wheel drive
Winch	Yes
Tank Capacity	335 gallons
Pump Volume	85 GPM @ 150 psi
Pump Pressure	40 GPM @ 275 psi
Gross weight	15,000 lbs.

800' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
150' of 3/4" booster hose

No. 5 Heavy 4-Wheel Drive

Class	Heavy
Seating	6 person
Drive Type	4-wheel drive
Winch	Yes
Tank Capacity	500 gallons
Midship Pump Volume	300 GPM @ 150 psi

FIRE CONTROL HANDBOOK

Midship Pump Pressure	50 GPM @ 475 psi
Booster Pump Volume	85 GPM @ 150 psi
Booster Pump Pressure	40 GPM @ 275 psi
Gross Weight	17,000 lbs.

1200' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
100' of 1-1/2" cotton jacket fire hose (hotline)
300' of 3/4" booster hose

No. 8 Heavy Conventional Tanker

Class	Heavy Tanker
Seating	3 person
Drive Type	Conventional
Winch	No
Tank Capacity	1250 gallons
Pump Volume	500 GPM @ 150 psi
Pump Pressure	300 GPM @ 280 psi
Gross weight	26,000 lbs.

1200' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
100' of 1-1/2" cotton jacket fire hose (hotline)
500' of 2-1/2" cotton jacket fire hose
300' of 3/4" booster hose

No. 9 Heavy Conventional

Class	Heavy
Seating	6 (3 under canopy in back) person
Drive Type	Conventional
Winch	No Tank Capacity
Tank Capacity	650 gallons
Pump Volume	500 GPM @ 150 psi
Pump Pressure	300 GPM @ 280 psi
Gross weight	23,000 lbs.

1200' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
100' of 1-1/2" cotton jacket fire hose (hotline)

FIRE CONTROL HANDBOOK

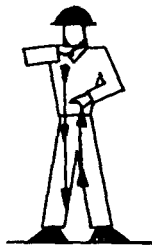
500' of 2-1/2" cotton jacket fire hose
300' of 3/4" booster hose

No. 10 Heavy 4-Wheel Drive

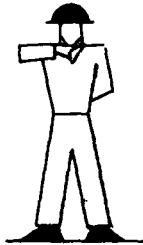
Class	Heavy
Seating	5 (Inside) person
Drive Type	4-Wheel Drive
Winch	Yes
Tank Capacity	500 gallons
Pump Volume	300 GPM @ 150 psi
Pump Pressure	100 GPM @ 300 psi
Gross weight	19,500 lbs.

1200' of 1-1/2" cotton jacket fire hose
800' of 1" cotton jacket fire hose
100' of 1-1/2" cotton jacket fire hose (hotline)
300' of 3/4" booster hose

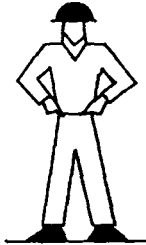
(b) WATER USE HAND SIGNALS



HOW FULL
IS TANK?



FULL

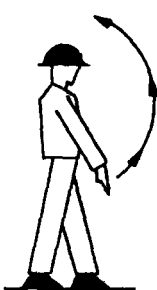


HALF FULL



LOW

-----REPLY-----



DELIVER WATER
AT NOZZLE



INCREASE
PRESSURE



DECREASE
PRESSURE

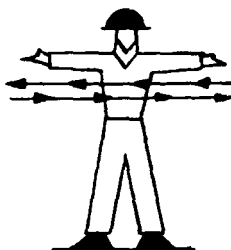


MORE
HOSE

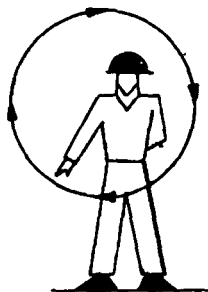
Each repetition indicates
an increase or decrease
of 10 pounds



BROKEN
HOSE



SHUT DOWN



ROLL UP
HOSE

(c) WATER USAGE AND FRICTION LOSS CHART

HOSE SIZE	TIP SIZE	FRICTION LOSS PER 100' LEN.	GALLONS PER MIN. FLOW	MINUTES FOR PUMPING 500 GALS.	ENGINE PRESSURE NEEDED TO KEEP 50 LBS. NOZZLE PRESSURE
3/4" HARDLINE	1/8"	1.5 LBS	3.0	166	51.5 LBS
	3/16"	7.0 LBS	7.0	71	57.0 LBS
	1/4"	20 LBS	12.5	40	70.0 LBS
	5/16"	50 LBS	20.0	25	100.0 LBS
1" COTTON JACKET	1/8"	1.0 LBS	3.0	166	51.0 LBS
	3/16"	1.5 LBS	7.0	71	51.5 LBS
	1/4"	5.0 LBS	12.5	40	55.0 LBS
	5/16"	12 LBS	20.0	25	62.0 LBS
1-1/2" COTTON JACKET	3/16"	0.5 LBS	7.0	71	50.5 LBS
	1/4"	1.0 LBS	12.5	40	51.0 LBS
	5/16"	1.5 LBS	20.0	25	51.5 LBS
	3/8"	3.5 LBS	29.0	17	53.5 LBS
2-1/2" COTTON JACKET	3/4"	4 LBS	117	4.3	54 LBS
	7/8"	7 LBS	160	3.1	57 LBS
	1	12 LBS	209	2.4	62 LBS
	1-1/8"	17 LBS	265	1.9	67 LBS
	1-1/4"	25 LBS	306	1.6	75 LBS

(2) DOZERS
(a) LINE CONSTRUCTION CHART

RATE OF CONSTRUCTION - YARDS PER HOUR

LIGHT VEGETATION

PERCENT SLOPE	MEDIUM DOZERS		HEAVY DOZERS		PERCENT SLOPE
	DOWNGRADE	UPGRADE	DOWNGRADE	UPGRADE	
0	1485	1485	1750	1750	0
10	1600	1400	1900	1470	10
20	1785	975	1930	1130	20
30	2012	675	1830	850	30
40	2060	350	1500	700	40
50	1900	250	1015	635	50

MEDIUM VEGETATION

0	1250	1250	1000	1000	0
10	1300	800	1080	885	10
20	950*	340	1115	650	20
30	1100	250	1085	470	30
40	1500	150	970	333	40
50	1575	100	650	217	50

HEAVY VEGETATION

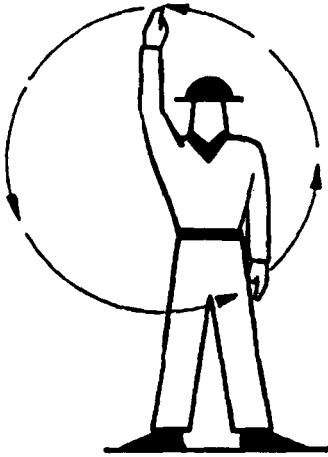
0	450	450	700	700	0
10	500	400	740	600	10
20	600	300	783	417	20
30	710	260	933	350	30
40	725	250	1217	300	40
50	500	100	1000	200	50

Average - 885 yards per hour

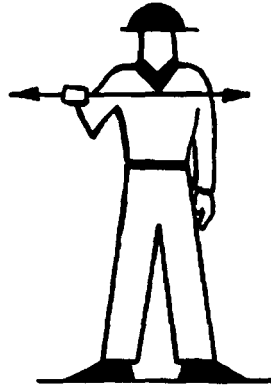
Average - 935 yards per hour.

Go with the averages - don't dwell on charts.
Rates are averages from the 1967 CDF dozer tests.
*One pass only - no average.

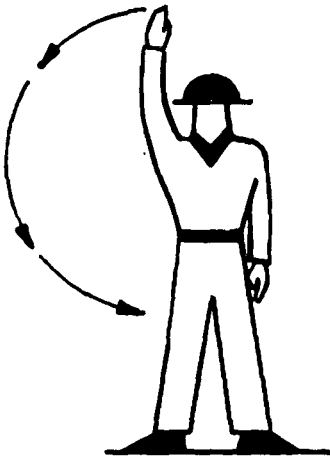
(b) DOZER HAND SIGNALS



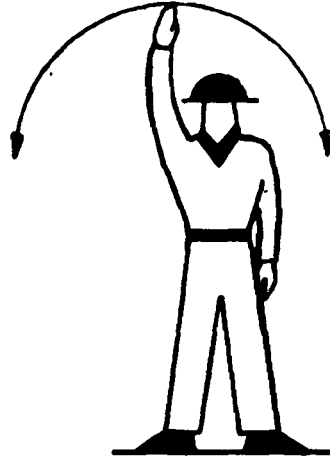
REVERSE OR BACK UP: With arm fully extended, swing in full circle in front of the body.



STOP OR SHUT DOWN: Swing arm (palm down), flag or light back and forth in a level motion in front of the body, chest high.



TURN: Hold arm, flag, or light, directly overhead and swing downward on the side of the turn.



CAUTION: Wave arm, flag or light back and forth in a half circle at arms length overhead.

FIRE CONTROL HANDBOOK

(3) HAND CREWS

(a) LINE CONSTRUCTION CAPABILITIES

The following information can be used by the fire manager to estimate the number of hand crews to do a given job. These are only guidelines. Local variables, such as slope, weather, time of day, and length of shift, should be taken into consideration. This information is based on studies conducted by CDF Conservation Camp Crews in 1966 and 1967.

FUEL TYPES

- (a) For line construction studies, fuels are divided into four groups:
1. Grass type; indicates a 3 foot line will normally handle a fire.
 2. Medium brush; indicates a 6 foot line normally needed.
 3. Heavy brush; indicates a 9 foot line normally needed.
 4. Extra heavy brush or slash; indicates a 12 foot line is needed.

LINE CONSTRUCTION

- (a) One person can cut an average of 20 square yards per hour. This is working time, first 2-3 hours only.
- (b) A 15 person crew can cut: 15 x 20 sq. yards or 300 sq. yds.
- (c) This indicates one 15 person crew can cut: 9 x 300 sq. yds. or 2700 sq. ft. per hour.
- (d) On an average a person will construct line at the following rates per hour (in square yards).
1. 1st hour - 21.4
 2. 2nd hour - 20.3
 3. 3rd hour - 19.1
 4. 4th hour - 17.9
 5. 5th hour - 16.7

FIRE CONTROL HANDBOOK

- (e) One acre of land 4 (side) x 208' equals 832 lineal ft. (i.e., four sides at 208' per side) so one 15 person crew should cut a 3' line around this acre in one hour working time.
- (f) On an average one person will cut 20 sq. yds. of fire line per hour regardless of fuel type. Why?
 1. Every inch of line in grass is scraped. Only scraping tools are likely to be used.
 2. Generally in fires on which the crews worked longer than an hour, two or three fuel types were encountered.
 3. Cutting one bush exposes more open area with less vegetation underneath. Cutting and scraping tools are used.

HAND LINE CONSTRUCTION "RULES OF THUMB" AND STANDARDS

<u>LINE WIDTH STANDARDS</u>	<u>GRASS</u>	<u>MED. BRUSH</u>	<u>HEAVY BRUSH</u>	<u>EXTRA HEAVY BRUSH OR BRUSH OR SLASH</u>
LINE WIDTH	3'	6'	9'	12'
FORWARD PROGRESS PER SQ. YD.	3'	1-1/2'	1'	3/4'
LINEAR FEET	60'	30'	20'	15'
15 PERSON CREW FEET PER HOUR	900'	450'	300'	225'

(b) ATTACK ASSIGNMENTS

Factors to be remembered when using different types of hand crews on fires are:

- (1) Inmate and youth ward crews from one camp or institution should not be allowed to intermingle with crews from another camp or institution. Nor should they be allowed

FIRE CONTROL HANDBOOK

- to intermingle with crews consisting of free firefighters.
- (2) Crews should normally be put to work as a unit with their respective leaders. If crews need to be split into smaller working groups for some good reason, additional crew leaders who have had special training in the use of these crews should be assigned to each group.
 - (3) Custodial hazards (i.e., resort areas, homes, camp grounds, etc.) should be considered and avoided, whenever practicable, in making assignments for inmate and ward crews.
 - (4) In the event a ward or inmate suffers a serious illness or injury, responsible CDF personnel, in the absence of custodial officers, shall take whatever action is necessary to provide the injured with proper medical attention.
 - (5) Interviews with wards or inmates by reporters or pictures taken by photographers will be permitted only with the expressed permission of Fire Crew Supervisors or custodial personnel.
 - (6) A Fire Crew Supervisor should normally not be assigned to the dual role of *Sector Boss*. The responsibility of properly supervising a crew actively engaged in fire control action is a full-time job. An exception to this rule may be cited in a case where mop-up and patrol activities are of such nature that it becomes practical to assign additional responsibilities to the Supervisor.
 - (7) Relief or rotation should be considered after three or four shifts, or upon recommendation of the *Hand Crew Coordinator*.

FIRE CONTROL HANDBOOK

b. AIR ATTACK

(1) GENERAL

The objective of Air Attack is to reduce the number of large fires by placing water, chemicals and personnel at fires with airtankers and helicopters in advance of Ground Attack, and to continue providing support to Ground Attack.

Air Attack has unique fire suppression capabilities not possible with Ground Attack. As in the case of Ground Attack, the greatest value of Air Attack is for *Initial Attack*. Air Attack and Ground Attack are integrated and correlated, but Air Attack is considered to be supplemental to Ground Attack because of flight limitations during periods of darkness, low visibility or high winds. Air Attack cannot be relied upon to completely contain or control a wildland fire.

The CDF and USFS have worked cooperatively to locate Air Attack Bases to provide rapid *Initial Attack* on CDF and USFS protected lands. Airtanker initial response criteria has been established to deliver air drops on fires within 20 minutes after the first report. Presently, the CDF and USFS operate 19 primary Air Attack Bases and 4 Reload Bases. Seven of the primary Air Attack Bases are jointly operated with the USFS.

All airtankers on CDF contract are normally on standby for 9 days out of 10 with the 10th day being a mandatory day off for plane and pilot. Daily standby hours vary with the fire protection needs of the area covered but are usually between 1000 hours and 30 minutes before sunset, PDST. Days off or 2 hour call back may be allowed on very low fire danger days with the approval of the Director's Office. Airco planes and helicopters will be available 7 days a week.

Normal daily standby hours at the Air Attack Bases end at 30 minutes before official sunset. This is known as "Cut-Off Time." The USFS may have different standby hours.

After "Cut-Off Time", an airtanker may be dispatched within the *Zone of Influence* of its base as late as official sunset, provided:

FIRE CONTROL HANDBOOK

- the pilot being dispatched has made a previous drop on the fire; and
- an Airco or lead plane is directing the Air Attack operation and he has determined that visibility in the target area is good and that other safety factors have been carefully considered.

Airtankers and helicopters are occasionally dispatched to CDF/USFS pay boundary fires. All Air Attack resources are at the disposal and use of either agency. The first control aircraft (Airco or lead plane) over the fire will assume command of the air actions and will inform ground forces, all aircraft, and both agencies.

If the CDF Airco is the first control aircraft over a USFS fire, he will assume command until a USFS lead plane arrives. At that time, there will be a definite decision as to which agency will take over the coordination of air activities.

There will be times when both airtankers and a helictack crew will be over the fire before a control aircraft or before a ground *Fire Boss* arrives. In these cases, the Helitack Captain should control the airtankers until relieved by Airco or lead plane.

(2) AIRTANKERS

(a) UTILIZATION

Each fire has a different set of circumstances which can only be effectively evaluated by the people at the scene. The *Fire Boss* and Airco must work as a team to obtain the most effective and economical use of airtankers.

Unit Administrators will counsel with their Airco and *Fire Boss* so that careful judgment is exercised in use of airtankers on fires. Advantage must be taken of favorable weather conditions and other information so that unnecessary drops are not made. Aircos and *Fire Bosses* will continuously evaluate the need for further airtanker drops. Under the most critical fire conditions, the number of airtankers that can be utilized effectively will

FIRE CONTROL HANDBOOK

require enough airtankers to provide one drop every five minutes, using whatever size airtankers are available. This criteria shall be used as a guide.

If additional airtankers on the fire would make airtanker action effective and successfully reduce a potentially serious fire problem, they should be ordered as soon as possible. Airtankers will be released if they are ineffective or where only a very few acres and no serious loss will result due to ground suppression action, natural breaks, roads, etc.

It has been demonstrated that the greatest value to be derived from aircraft is their use for rapid *Initial Attack* by holding the fire to a small size until Ground Attack units can arrive. In recognition of the *Initial Attack* values of airtankers, the normal policy will be to divert airtankers from a going fire to a new fire. An exception would be when there are uncommitted airtankers which would reach the new fire first. This decision will be based primarily upon the imminent threat to human life and excessive property damage. Excessive property damage is meant to include such values as structures, recreational sites and high value timber stands, and is not meant to include minor improvements, i.e., abandoned sheds and fences, or brushlands, grasslands and open timber stands.

When a *Fire Boss* recognizes that he has critical problems (i.e., safety of personnel, structures or high values in jeopardy) and has urgent need for continued air support, he should immediately contact the *ECC* and request "NO DIVERSION" on his airtankers. When the critical phase has passed, the *Fire Boss* should immediately advise the *ECC*. This procedure should be used for genuine emergencies only. A hot, running fire is not, in itself, enough justification to request "NO DIVERSION."

Fire Bosses will be advised when aircraft which have been committed to their fires have been diverted.

Never ask a pilot to drop his load on a fire when it is not needed. The airtanker should be returned to the base with its unused portion of the retardant remaining in the aircraft so that it can be diverted to a new fire with a minimum loss of time.

FIRE CONTROL HANDBOOK

Air drops shortly after daybreak are often ineffective and are hazardous because of hanging smoke pall and poor visibility caused by long shadows. Fire Managers and ECCs should be realistic about the need for ordering airtankers "at dawn." In most cases, they will not be needed until 1000 hours or later. An Airco may be sent to sample the visibility before dispatching airtankers.

REMEMBER

ON AIR OPERATIONS YOU ARE SPENDING MONEY FAST
\$\$\$\$

AIRTANKERS ARE JUST ANOTHER TOOL WITH A UNIQUE
LINE-BUILDING AND FIRE-EXTINGUISHING CAPABILITY.

TURN AIRTANKERS ON AND OFF AS THEY ARE NEEDED.

(b) REGIONAL AIR COORDINATION (RACO)

Multiple fires or other complex fire situations within a Region may require coordinated dispatching and allocation of airtankers. Each Region will establish an air coordination plan to assume the duties of airtanker dispatching. This coordination plan will be known as *Region Air Coordination (RACO)*.

(c) JOINT AIR COORDINATION (JAC)

Competition can exist between agencies for airtankers. This usually occurs on large *Joint Fires* or *Multiple Fires*.

When fire activity builds to the point where interagency competition for airtankers becomes a problem, a *Joint Aircraft Coordination (JAC)* team will be formed. JAC will be located at either the CDF Region - USFS zone level or at the CDF's Director's Office - USFS Region Level. This team will be responsible for assigning and allocating airtankers within a specified geographical area. They will coordinate airtanker operations and make priority-use decisions.

(d) TYPES AND CAPABILITIES

TYPE	MIN. AIRSTRIPE REQUIRED	LOADED SPEED DROP/CRUISE	NUMBER OF DOORS	MINIMUM RELEASEABLE GALLONS	TOTAL CAP. GAL.	*FEET OF TRAIL DROP
<u>LIGHT</u>						
S2F	3500	120/190	4	200	800	400
PBY5A	4000	100/135	2	500	1000	500
<u>MEDIUM</u>						
SUPER PBY5	4000	100/150	2	700	1400	700
C119	5000	125/195	6	330	1900	900
C119J	4000	125/195	6	300	1800	900
BI7	4500	115/175	4	450	1800	900
DC-4	4000	130/195	8	250	2000	1000
<u>HEAVY</u>						
S-PB4Y-2 (SUPER)	4500	120/200	8	300	2400	1200
DC6	5000	150/250	4, 6, 8		3000	1500
DC7	5000	160/250	8	400	3200	1600

*NOTE: Trail Drop Distance is 2 Gallons for 1 foot.

Number of available drop combinations can be determined from the following columns:

Number of doors,
minimum releaseable gallons, and
total capacity.

FIRE CONTROL HANDBOOK

(e) DROP PATTERNS

All airtankers under contract to wildland fire control agencies in California can bulk drop fire retardants in three patterns:

SALVO - Total load at one time and place, all tanks open.

TRAIL - Overlapping series of from 2 to 8 tanks in tandem.

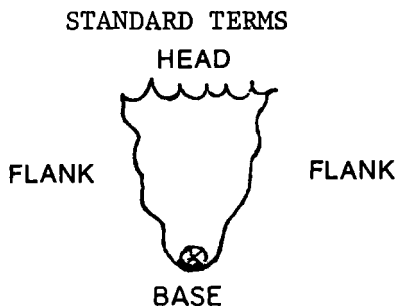
SPLIT - Single drop from one tank at a time at widely spaced intervals or 2 to 8 times on the same place.

(f) ATTACK

The *Fire Boss* must do the following:

- (1) Contact *Airco* upon arrival, via Regional car-to-car radio net.
- (2) Advise *Airco* what your tactics will be.
- (3) Use *Airco* for gathering intelligence.
- (4) In absence of *Airco*, talk to airtankers on H.T. net.
- (5) Use cardinal compass directions for drop instructions. The *Fire Boss* and *Airco* must establish a North-South line.

Use the following terms:



(g) SAFETY

Retardant drops from airtankers can be dangerous. A low drop has sufficient mass and velocity to knock you off your feet and throw you a considerable distance.

While being hit directly by a load of retardant is at best a sloppy sticky mess, generally no serious

bodily injuries will be caused by the retardant if you take the proper precautions. The major cause of bodily injury resulting from a low drop is being thrown against rocks, trees, etc., or being struck by flying debris picked up by the retardant.

Airtanker pilots are constantly cautioned about the dangers to ground personnel resulting from low drops. Report immediately any injuries caused by a low drop. Obtain information on aircraft type and assigned tanker number.

If you are standing or running and are hit by the main force of the load from a low drop, you can expect to be thrown and bounced around rather violently.

If you are prone and are hit by a low drop, the risk of injury is reduced considerably over the injuries you might receive if you were standing or running.

If you are hit by a low drop, don't add to the flying debris--hold onto the tools or other equipment you might be carrying. Those flying tools or equipment could cause injury to you or someone on your crew.

The following safety rules apply to personnel when caught in a target area:

1. If you are in the target area and are sure you have time before the drop, **MOVE OUT OF THE TARGET AREA.**
2. If caught in the open, **LIE DOWN FACING INCOMING AIRTANKER**, hold tools firmly and to one side, hold helmet on, spread your feet for better stability and be sure goggles are in place to protect eyes.
3. **INDICATE YOUR PRESENCE** to the Aircraft by radio and precisely describe your location (not just "in the trees on the flank of the fire").
4. **GRAB SOMETHING SOLID** - like a large rock, tree or shrub. This makes an excellent shield to break the force of a low drop and keeps you from being thrown or slid along the ground.
5. When it is apparent a drop is coming in, **REMAIN CLEAR OF LARGE OLD TREES.** A low drop may break off large limbs.
6. After the drop, **MOVE BACK INTO THE DROP AREA QUICKLY** to take advantage of the retardant's effect.

(h) ADVERSE DAMAGE CLAIMS

CDF personnel shall take the following action when retardant drifts, over-sprays, and in some cases planned drops fall upon structures, improvements,

- (1) When possible, take immediate action to wash retardant from affected items before drying to prevent further damage.
- (2) Gather information, photos or other necessary evidence to complete and submit accident form 268 in the event a claim is submitted against the State.
- (3) If the property owner requests claims information, he should be referred to the aircraft operator, when known, who is required to have liability insurance.
- (4) In the event the property owner's claim is not satisfied with the aircraft operator or his insurance company and wishes to submit a claim against the State, he shall be provided with form 275 which advises how to obtain claim forms from the Board of Control.

(3) HELICOPTERS

(a) HELITACK CREWS

The basic personnel and equipment for *Initial Attack* dispatch will be:

1. Fire Captain
2. Three Firefighters
3. Hand tool complement
4. One rubber backpack
5. One small chainsaw with gas and oil.
6. Fusees

7. Two fivechannel handietalkies
8. Barrel pump with filter.
9. Fuel for approximately two hours of flight time.

NOTE: The basic complement may change with the new contract requirements.

Example: Rigid Rogers tank and/or internal litter kit. There will also be some slight variations depending on the needs in the Base's Zone of Influence.

(b) UTILIZATION

1. Line Construction - The best results have been obtained by the helitack crew working directly on the fireline to back up air-tanker drops. Quick, aggressive ground action following air drops increases their effectiveness.
2. Backfiring - Natural barriers or roads should be utilized. In some cases backfiring can be used to strengthen retardant lines if no other suitable barriers exist.
3. Hotspotting - Aggressive holding action of trouble spots on the line can reduce spread until ground forces arrive. This method is often accompanied by air drops from air-tankers and/or helicopters.
4. Spot Fires - The mobility of the helitack crew makes it a very valuable tool for control of spot fires. Their early control can reduce the complexity of the fire problem and the number of acres burned.
5. Water or Retardant Drops - The light turbine CDF contract helicopter has the capability of dropping 80-120 gallons of water or retardant from a Rigid Tank with a high degree of accuracy, and may be able to work some areas inaccessible to airtankers. Water dropping operations can be most effective and should be considered in strategy planning.

Water sources can be nearby rivers, creeks, ponds, or fire engines. Water drops can be used for:

- a. Spot fires
 - b. Snags
 - c. Hot spots
 - d. Direct support to helitack crew or other persons on the ground.
6. Helispot Construction - If the fire problem is such that ground access is limited, the helitack crew can be used to construct and manage *Helispots* on or near the fire perimeter. Safety can best be maintained if all helicopter operations around *Helispots* are managed by trained helitack personnel.
 7. Personnel Transportation - The helicopter is a ready means of transporting personnel to areas on the line with limited access or to supplement the helitack crew before the actual arrival of ground forces.
 - a. While the crew is constructing *Helispots*, the helicopter can rendezvous with incoming fire engines or hand crews and start shuttling people.
 - b. The helitack personnel should pre-plan pick-up points with the people in the Ranger Districts for areas that have little or no ground access.
 8. Additional Uses of the Helicopter
 - a. Transportation of Hose and other supplies; on steep, rugged terrain, transportation of hose increases the effectiveness of the hoselay team by saving time and energy.
 - (1) Hose should be rolled or bagged for transportation.
 - (2) Hose trays are not authorized for use by CDF helicopters.
 - b. Mapping and Recon; it is often advantageous for the *Fire Boss* to take a look at, and get a map of, the fire to aid him in planning the suppression effort.
 - c. Rescue and evacuation; the helitack unit

provides personnel trained in first aid and rescue techniques plus the rapid transport capability of the helicopter.

(c) NIGHT FLYING RESTRICTIONS

- (1) All fire managers, helitack personnel and pilots shall be aware of the risks involved in helicopter flights during failing light situations or in darkness. Safety must be the deciding factor in all cases.
- (2) Helicopter flights between airtanker cut-off time and dark are permissible under the following conditions:
 - (a) The *Fire Boss* believes the mission is necessary, practical and safe, and the pilot and Helitack Captain agree that it is safe.
 - (b) If released from a fire, the helicopter must depart no later than 30 minutes after official sunset and must land at a lighted airport or heliport. If the helicopter remains overnight at the fire scene, necessary security measures must be taken.
- (3) No fire missions will be done after dark. When it is clearly necessary to fly a seriously ill or injured person to a medical facility after dark, the helicopter may be used if adequate lighting is available at the destination. In these instances, only the minimum number of persons required for the mission will be aboard.
- (4) Ferrying from heliport to heliport (or airport) is permissible after dark if adequate lighting is available at both the departure point and destination.

(d) TYPES AND CAPABILITIES

HELICOPTER DESCRIPTION											
MAKE AND MODEL	ROTOR DIAMETER	FUEL GRADE	FUEL CAP. IN GALS.	FUEL CONS. IN GPH	INTERNAL PAY LOAD	EXTERNAL PAY LOAD	NO. OF PASS.	HOVERING CEILING I.G.E.	CRUISE SPEED MPH	RANGE STATUTE MILES	USEFUL LOAD
Alouette II	34' 6"	JP 1-5	149	30	1,000	1,300	4	6,400	92	444	1,660
Alouette III	36' 1"	JP 1-5	148	52	1,600	1,650	6	10,000	118	300	2,195
Bell 47G-3B-1	37' 2"	100/300	60	20	600	850	2	16,400	80	324	1,156
Bell-Jet Ranger 206-B	33' 4"	JP 1-5	76	31	973	1,200	4	10,200	125	360	1,605
Bell 204-B	48' 0"	JP 1-5	165	70	2,950	3,700	9	16,800	115	240	3,900
Bell 205	48' 0"	JP 1-5	220	80	4,000	5,000	14	18,200	120	315	4,600
Bell 212 (Twin)	48' 0"	JP 1-5	225	90	3,046	3,106	14	17,800	136	315	4,040
Boeing Vertol 107-11 (Twin)	50' 0"	JP 1-5	350	180	5,500	6,500	26	7,800	130	246	7,718
Fairchild Hiller FH-1100	35' 5"	JP 1-5	69	28	765	1,000	4	10,000	115	400	1,355
Hughes 500 C	26' 4"	JP 1-5	64	26	682	782	4	11,000	115	350	1,630
Hiller 12-E	35' 5"	100/130	46	18	580	800	2	9,500	70	200	1,040
Hiller 12-E-4	35' 5"	100/130	46	18	650	700	3	9,000	70	200	900
Sikorsky S-61N (Twin)	62' 0"	JP 1-5	410	180	4,600	6,500	26	6,700	120	278	8,040
Sikorsky S-55	53' 0"	100/130	175	40	1,500	1,800	5	7,500	90	375	3,171
Sikorsky S-55-T	53' 0"	JP 1-5	186	43	2,500	2,500	10	9,000	85	345	2,700
Sikorsky S-58	56' 0"	100/130	158	65	2,500	4,000	15	5,000	98	280	5,250
Sikorsky S-58-T (Twin)	56' 0"	JP 1-5	290	90	3,050	4,550	15	8,000	115	350	5,805
Sikorsky S-64	72' 0"	JP 1-5	1700	520	N/A	17,500	60/w Pod	6,000 O.G.E.	95	600	20,760

(e) HELICOPTER HAND SIGNALS

These signals are advisory and the pilot is under no obligation to obey them. Conditions beyond the control of the pilot or factors unknown to the ground signaler may make it necessary or advisable for the pilot to disregard the signals.

When these signals are used it is important that the signaler position himself beyond the path of the main rotor where he may be readily observed by the pilot.



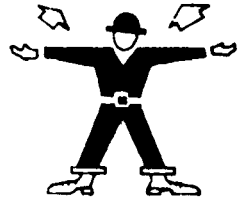
**CLEAR TO
START ENGINE**



TAKEOFF
RIGHT HAND
BEHIND BACK
LEFT HAND
POINTING UP



HOLD—HOVER
PLACE ARMS OVER
HEAD WITH
CLENCHED FISTS



MOVE UPWARD
ARMS EXTENDED.
SWEEPING UP



**MOVE
DOWNWARD**
ARMS EXTENDED.
PALMS DOWN.
ARMS SWEEPING
DOWN



MOVE RIGHT
LEFT ARM
HORIZONTAL
RIGHT ARM SWEEPS
UPWARD TO POSITION
OVER HEAD



MOVE LEFT
RIGHT ARM
HORIZONTAL
LEFT ARM SWEEPS
UPWARD TO POSITION
OVER HEAD



**MOVE
FORWARD**
COMBINATION OF
ARM AND HAND
MOVEMENT IN A
COLLECTING
MOTION PULLING
TOWARD BODY



**MOVE
REARWARD**
HANDS ABOVE
ARM, PALMS OUT
USING A SHOVING
MOTION



**RELEASE
SLING LOAD**
LEFT ARM DOWN AWAY
FROM BODY. RIGHT ARM
CUTS ACROSS LEFT
ARM IN A SLASHING
MOVEMENT FROM
ABOVE

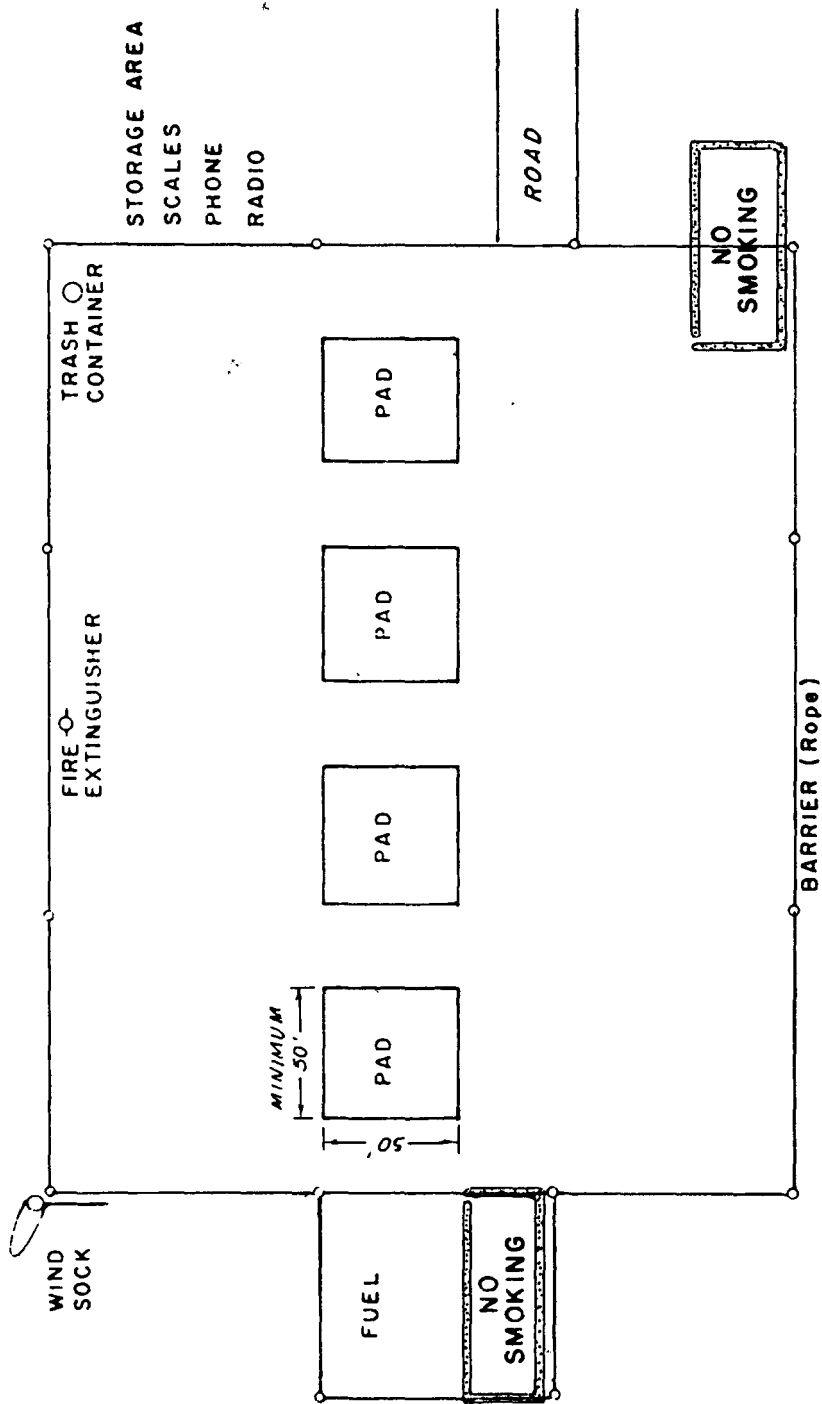


LAND
ARMS CROSSED
IN FRONT OF
BODY AND POINTING
DOWNWARD WITH
BACK TO WIND



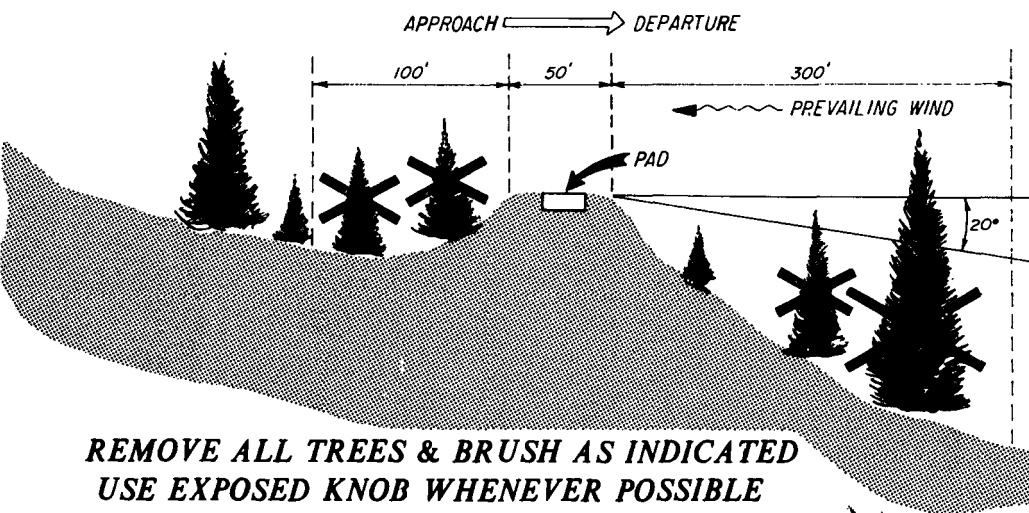
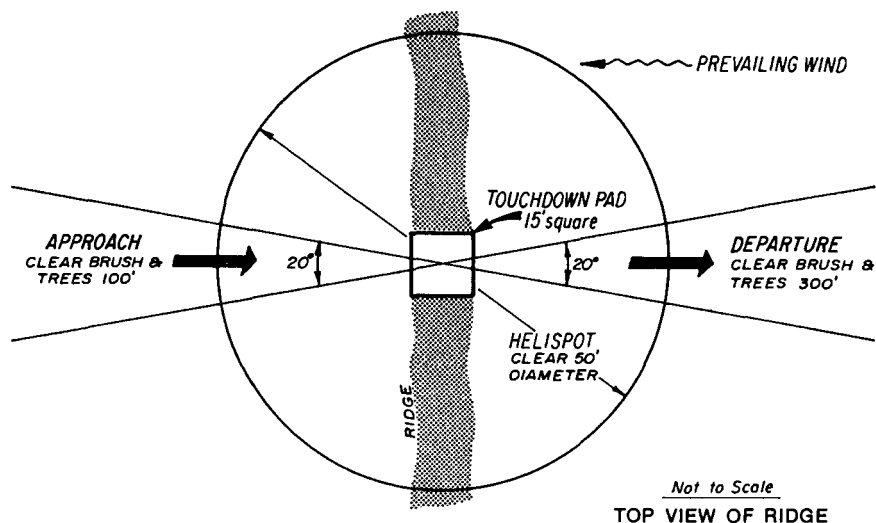
**SHUT OFF
ENGINE**
SLASH ACROSS
THROAT

(f) HELIPORT
(Example)



(g) HELISPOT Location & Size

(FOR BELL JET RANGER 206B OR SMALLER)



FIRE CONTROL HANDBOOK

NOTE

All crew members will be alert to hazards, especially wires, during flights. In landing configurations, special care will be made to reconnoiter the area. Prior to take-off at each new landing site, a crew member will walk out the intended take-off path at least 150 yards on level ground to determine if there are any existing wires or other hazards. If the intended departure path is over a downhill course, a shorter distance may be walked out.

This procedure shall be used for each change in take-off direction, which may be caused by change in wind direction or change in mission area. In each case the crew member shall be especially alert to poles or trees hidden from view at the take-off site where telephone wires, power lines, static lines, guy wires, or other hazards of this nature may exist. It shall be the pilot's responsibility to indicate his departure path and to request a walk-out in another direction should he desire to change his departure direction.

FIRE CONTROL HANDBOOK

c. TRAVEL PROCEDURE AND ETA's

- (1) The sending Ranger Unit's *Emergency Command Center (ECC)* has the responsibility to provide to responding personnel their assignment and destination.
- (2) The sending Ranger Unit's *ECC* and responding personnel will mutually agree on a travel route and ETA.
- (3) Responding personnel have the responsibility to notify the requesting Regional *ECC* when conditions have made it impossible for them to meet their stated ETA within a reasonable error of time which adversely affects their assignment.
- (4) It is the responsibility of responding personnel to report any equipment failures that require a mechanic to the nearest Regional or Ranger Unit *ECC*.

d. COMMUNICATIONS

(1) CDF CLEAR TEXT WORDS AND PHRASES

<u>Words and Phrases</u>	<u>Application</u>
Unreadable	Used when signal received is not clear. In most cases, try to add the specific trouble. Example: "Unreadable, background noise."
Loud and Clear	Self explanatory
Stop Transmitting	Self explanatory
Copy, copies	Used to acknowledge message received. Unit radio identifier must also be used. Example: "Engine 2675, copies."
Affirmative	Yes
Negative	No

FIRE CONTROL HANDBOOK

Words and Phrases

Application

Respond,
responding

Used during dispatch - proceed to or proceeding to an incident. Example: "Engine 5176, respond..." or "St. Helena, Engine 1375 responding."

Enroute

Normally used by administrative or staff personnel to designate destinations. Enroute is not a substitute for responding. Example: "Redding, Chief 2400 enroute R II."

In-quarters, with
Station name or
number

Used to indicate that a unit is in a station. Example: "Morgan Hill, Engine 4577 in-quarters, Sumol."

Uncovered

Indicates a unit is not in-service, because there are no personnel to operate it.

Out-of-Service

Indicates a unit is mechanically out of service. Example: "Auburn, Transport 2341, out-of-service." Note, when repairs have been completed, the following phrase should be used: "Auburn, Transport 2341, back in service, available."

In-Service

This means that the unit is operating, not in response to a dispatch. Example: "Fortuna, Engine 1283, in-service, fire prevention inspections."

Repeat

Self explanatory

Weather

Self explanatory

FIRE CONTROL HANDBOOK

<u>Words and Phrases</u>	<u>Application</u>
Return to _____	Normally used by ECC to direct units that are available to a station or other location.
What is your location?	Self explanatory
Call _____ by phone	Self explanatory
Disregard last message	Self explanatory
Stand by	Self explanatory
Vehicle registration check	Self explanatory
Is _____ available for a phone call?	Self explanatory
At scene	Used when units arrive at the scene of an incident. Example: "Perris, Engine 6183, at scene."
Available	Used when a unit is ready for a new assignment or can return to quarters. The ECC will give the unit a new assignment or direct it to return to quarters. Example: "San Luis, Cuesta Crew 2 available." "Cuesta Crew 2 return to Cuesta."
Available at scene	Used when a unit is still committed to an incident, but could be dispatched to a new emergency if needed.
Available at residence	Used by administrative or staff personnel to indicate they are available and on-call at their residence.

FIRE CONTROL HANDBOOK

Words and Phrases

Application

Can handle

Used with the amount of equipment needed to handle the incident. Example: "Susanville, Battalion 2212, can handle with units now at scene."

Burning operation

Self explanatory

Report on conditions

Self explanatory

Fire under control

Self explanatory

Emergency Traffic
Only

Radio users will confine all radio transmissions to an emergency in progress or a new incident. Radio traffic which includes status information such as responding, reports on conditions, at scene and available will be authorized during this period.

Emergency Traffic

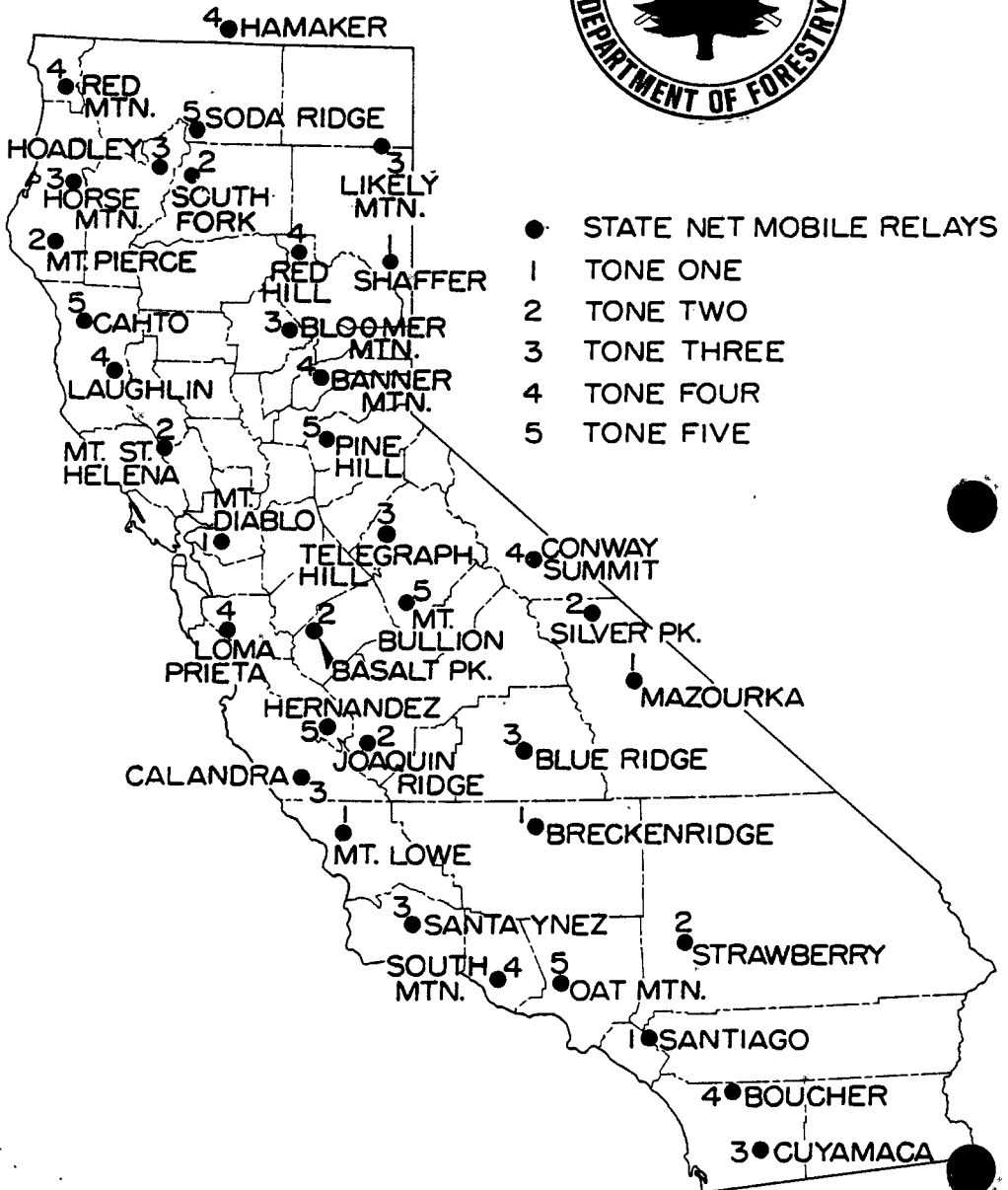
Term used to gain control of radio frequency to report an emergency. All other radio users will refrain from using that frequency until cleared for use by ECC.

Resume Normal
Traffic

Self explanatory

FIRE CONTROL HANDBOOK

(2) STATE NET MOBILE RELAYS



FIRE CONTROL HANDBOOK

(3) PHONETIC ALPHABET

The phonetic alphabet should be used for spelling out unusual names of persons and locations. The names used after each letter have been found to be the most understandable. They should always be given as: "A - Alfa", "B - Bravo" when transmitted via radio; never "A as in Alfa" or "B as for Bravo", etc.

Standard Alphabet

A.....	Alfa
B.....	Bravo
C.....	Charlie
D.....	Delta
E.....	Echo
F.....	Foxtrot
G.....	Golf
H.....	Hotel
I.....	India
J.....	Juliet
K.....	Kilo
L.....	Lima
M.....	Mike
N.....	November
O.....	Oscar
P.....	Papa
Q.....	Quebec
R.....	Romeo
S.....	Sierra
T.....	Tango
U.....	Uniform
V.....	Victor
W.....	Whiskey
X.....	X-ray
Y.....	Yankee
Z.....	Zebra

(4) CAR-TO-CAR FREQUENCIES

151.160 MHz	151.340 MHz
(II) Shasta-Trinity	(I) Lake-Napa
151.175 MHz	
(IV) Tuolumne-Calaveras	151.355 MHz
(VI) Riverside (East)	State Net

151.190 MHz

- (I) Mendocino
- (II) Lassen-Modoc
- (IV) Amador-El Dorado
- (IV) Tulare
- (VI) San Diego

151.370 MHz

- (II) Tehama-Glenn
- (V) San Mateo-Santa Cruz

151.250 MHz

- (I) Humboldt-Del Norte
- (II) Nevada-Yuba-Placer
- (V) San Benito-Monterey
- (II) Siskiyou

151.385 MHz

- (I) Region Net
- (IV) Fresno-Kings
- (VI) Riverside (West)

151.265 MHz

- (IV) Region Net
- (VI) Region Net

151.400 MHz

- (II) Butte
- (V) Santa Clara

151.325 MHz

- (II) Region Net
- (V) San Luis Obispo
- (VI) San Bernardino (East)

151.445 MHz

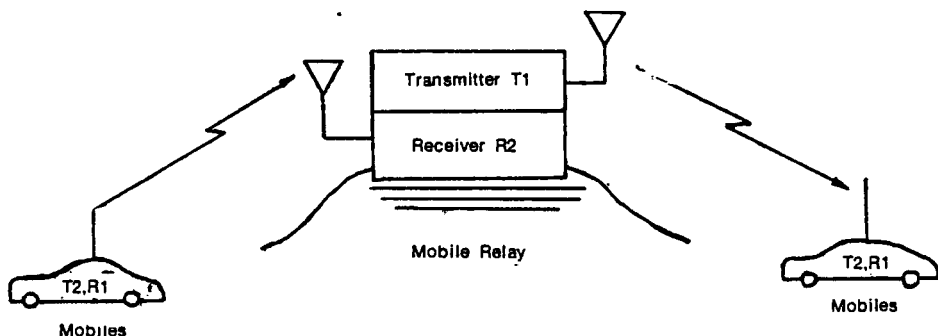
- (V) Region Net
- (VI) San Bernardino (West)

151.460 MHz

- (I) Sonoma
- (IV) Madera-Mariposa

(5) COMMUNICATION GUIDE

(a) MOBILE RELAY STATION

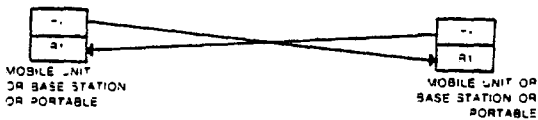


Retransmits (automatically) the signals of one mobile unit which is beyond the range of direct contact with a second mobile unit.

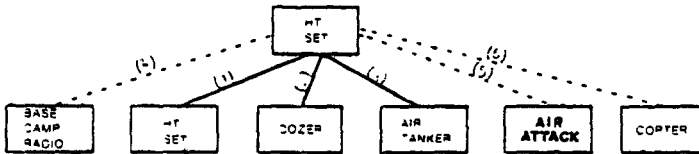
FIRE CONTROL HANDBOOK

(b) CAR-TO-CAR

Single radio frequency
Line-of-sight communication



(c) HANDIE-TALKIE NET



PRIMARY USE

- (1) INTERFERENCE-FREE NET FOR LINE PERSONNEL ON FOOT
- (2) DOZER - SWAMPER CLEAR CHANNEL
- (3) LINE PERSONNEL - AIRTANKER

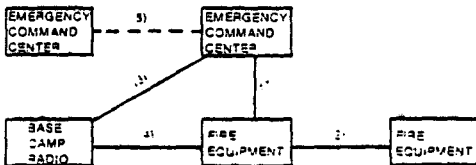
SECONDARY USE

- (4) HT SET - BASE CAMP RADIO
- (5) HT SET - AIR ATTACK
- (6) HT SET - COPTER

FREQUENCY ASSIGNMENT

- (1) ALL HT SETS
- (2) MOST DOZERS (THOSE HAVING 2 FREQUENCIES)
- (3) ALL AIRTANKERS (USFS, R 5 & CDF CONTRACT)
- (4) ALL BASE CAMP RADIOS
- (5) ALL AIR ATTACKS WITH STATEWIDE RADIO CAPABILITY.
- (6) ALL CDF CONTRACT COPTERS

(d) STATE NET (1)



PRIMARY USE*

- (1) EMERGENCY COMMAND CENTER - FIRE EQUIPMENT
- (2) FIRE EQUIPMENT - FIRE EQUIPMENT (ALWAYS CAR-TO-CAR IF POSSIBLE)
- (3) EMERGENCY COMMAND CENTER - BASE CAMP RADIO
- (4) FIRE EQUIPMENT - BASE CAMP RADIO (ALWAYS CAR-TO-CAR IF POSSIBLE)

SECONDARY USE

- (5) EMERGENCY COMMAND CENTER-EMERGENCY COMMAND CENTER

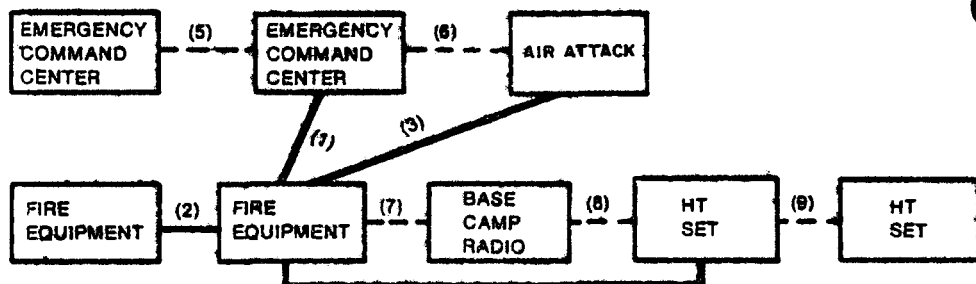
ANY OTHER USE REQUIRED.

*PRESUME A FIRE USING EQUIPMENT FROM ADJACENT REGIONS

FREQUENCY ASSIGNMENT

- (1) ALL RADIO-EQUIPPED VEHICLES (SOME DO NOT HAVE "CAR-TO-CAR").
- (2) ALL EMERGENCY COMMAND CENTERS, BASE CAMP RADIOS, CONSERVATION CAMPS, FIRE ACADEMY.

(e) REGION NETS (4)



PRIMARY USE*

- (1) FIRE EQUIPMENT-EMERGENCY COMMAND CENTER (ONLY IF STATE NET WON'T COVER)
- (2) FIRE EQUIPMENT-FIRE EQUIPMENT (FIRE EQUIPMENT ON CAR-TO-CAR)
- (3) FIRE EQUIPMENT-AIR ATTACK (FIRE EQUIPMENT ON CAR-TO-CAR)

FIRE CONTROL HANDBOOK

- (4) FIRE EQUIPMENT-HT SET (FIRE EQUIPMENT ON CAR-TO-CAR)

----- SECONDARY USE

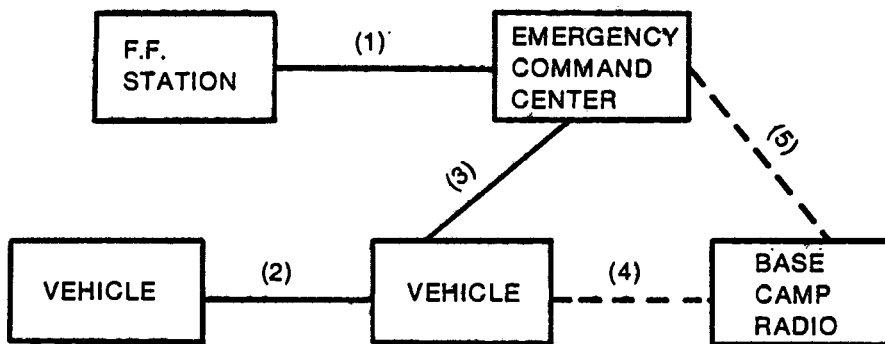
- (5) EMERGENCY COMMAND CENTER-EMERGENCY COMMAND CENTER
(6) EMERGENCY COMMAND CENTER-AIR ATTACK
(7) FIRE EQUIPMENT-BASE CAMP RADIO
(8) HT SET-BASE CAMP RADIO
(9) HT SET-HT SET

*PRESUME A FIRE IN A RANGER UNIT OBTAINING ASSISTANCE FROM OTHER RANGER UNITS IN THE SAME REGION.

FREQUENCY ASSIGNMENT

- (1) ALL REGION EQUIPMENT (EXCEPT FEW STAKESIDES), HT SETS, AIR ATTACKS, BASE CAMP RADIOS
(2) SEE FREQUENCY ASSIGNMENT CHART FOR FREQUENCY SHARING

(f) LOCAL NETS (10)



----- PRIMARY USE

- (1) INITIAL ATTACK DISP. CHANNEL, WITH QUIK-CALL.
(2) VEHICLE - VEHICLE (ALWAYS ON CAR-TO-CAR TACTICAL "ON FIRE" OPERATIONS).
(3) EMERGENCY COMMAND CENTER - VEHICLE (COMMAND, CONTROL, FIRE INFO. FLOW).

-- -- -- -- -- SECONDARY USE

- (4) WHEN AVAILABLE - USE AS NECESSARY.
- (5) WHEN AVAILABLE - USE AS NECESSARY.
- (1), (2), (3) WHEN AVAILABLE - USE AS NECESSARY.

ASSIGNMENT

- (1) ALL RANGER UNITS EXCEPT SISKIYOU.
- (2) ALL RANGER UNIT VEHICLES EXCEPT DOZERS & SOME STAKESIDES, RANGER UNIT ADMINISTRATIVE HANDLE--TALKIE SETS.
- (3) SEE FREQUENCY ASSIGNMENT LIST TO DETERMINE WHICH RANGER UNITS SHARE THE SAME LOCAL NET.

(6) RADIO IDENTIFICATION PLAN

Standardized radio identifiers will be used by all personnel using the Forestry radio system. Identifiers are assigned in a uniform and systematic manner to identify administrative personnel, special functions and certain categories of firefighting resources within the Department. Standardized identifiers also are used to increase the efficiency and the effectiveness of the Department's communication system.

The radio identifiers will consist of numbers or alpha-numeric combinations preceded by an appropriate descriptive indicator.

FIRE CONTROL HANDBOOK

Radio Identification Plan Indicators for Personnel & Equipment Resources

<u>Indicator</u>	<u>Resource</u>
"Air Attack"	Utility Aircraft
"Battalion"	State Forest Ranger I
"Chief"	State Forest Ranger II or above
"Copter"	Helicopter
"Crew"	Handcrew
"Crew Transport"	Crew Buses or Conservation Crew Vehicles
"Dispatch"	Command Center Personnel
"Dozer"	Bulldozer
"Dozer Tender"	Bulldozer Service Unit
"Engine"	Fire Engine, Pumper, 50 GPM min.
"Engineering"	Construction and Maintenance Personnel
"Forester"	Resource Management Personnel
"Helitack"	Helitack Crew
"Helitender"	Helitack Service Unit
"Patrol"	Pick-up pumper, 15 GPM min.
"Prevention"	Fire Prevention Personnel and Equipment

FIRE CONTROL HANDBOOK

<u>Indicator</u>	<u>Resource</u>
"Recon"	Reconnaissance Unit
"Repair"	Equipment Maintenance Personnel and Equipment
"Supply"	Materiel Management and Service Center Personnel and Equipment
"Tanker"	Air Tanker
"Trainee"	Field and Graduate Trainees
"Training"	Training Officers
"Transport"	Bulldozer Transport
"Utility"	Utility Vehicles, Stakesides
"Water Tender"	Water Tank Truck, 1,000 gal. Min.
"Ambulance"	These terms should be used with appropriate local government contract equipment.
"Crash"	
"Medic"	
"Salvage"	
"Squad"	
"Truck"	

FIRE CONTROL HANDBOOK

These indicators will be used for all radio transmissions except when the individual or resource is assigned to a position on an incident using the Incident Command System. The individual or resource then will use the ICS radio call assigned to that position.

(a) EMPLOYEE RESPONSIBILITY

All personnel who use the CDF radio system have the responsibility to:

- (1) Acquaint themselves with the master Radio Identification Plan as set forth by the Manual of Instructions.
- (2) Use only designated radio identifiers when calling personnel, stations, vehicles, or crews.
 - (a) Geographic names for land stations.
 - (b) Assigned radio identifiers for vehicles.
 - (c) Crew name and number for Handcrews.
 - (d) Use "Air Attack ____" for Utility aircraft.
 - (e) Use "Tanker ____" for airtankers.
 - (f) Use "Copter ____" for helicopter. (The 0 is pronounced "zero".)
 - (g) For Military Copters use last two digits of tail number and identifier military military copter.
"Military Copter ____."
- (3) Sign off with your regularly assigned Federal Communications Commission call sign.

FIRE CONTROL HANDBOOK

(b) PROCEDURE

RESPONSIBILITY

ACTION

Call Initiator

1. Select proper net and tone.
2. Open net by keying transmitter.
3. Wait 2 seconds (for single-tone to stop if not using car-to-car).
4. Pronounce radio identifier of station or unit you are calling (not FCC call sign) followed by your station or unit radio identifier, net and tone used.
 - 4a. If transmission is to be single message, such as responding, give message when opening net. Example: Engine 7160 informing ECC that the unit is responding. Engine 7160: "Silver City 7160 responding, L-3."

Call Receiver

5. Release transmitter switch.
6. Answer call by giving your station or unit radio identifier.
 - 6a. If more than one party is calling at the same time, select party you wish to answer first and answer by saying calling party's station or unit radio identifier followed by your station or unit radio identifier.

Call Initiator

7. Give message.

Call Receiver

8. Acknowledge message by repeating a sufficient portion to insure the initiator that the message was received, or acknowledge using an appropriate clear text phrase.

FIRE CONTROL HANDBOOK

- Call Initiator 9. Close net with FCC Call Sign or unit radio identifier.
- Call Receiver 10. Close net with FCC Call Sign or unit radio identifier.
- 10a. If *ECC*, give time as a reference for tape recorders.

(c) POLICY

By following a few simple rules, CDF personnel can use the medium of radio to carry on official conversation necessary to meet responsibilities during emergency periods. All persons using radios will observe the following policy.

- (1) Emergency traffic has priority over routine business.
- (2) Priority among messages and the proper method of transmitting each message should be considered at all times.
- (3) Do not call another station just to determine if you are being heard.
- (4) THINK BEFORE PUSHING THE BUTTON.
When using radio, you must remember that every message put on the air is received by many people on the system. Messages are also monitored by the FCC. You must use the radio in compliance with the license authorization, which clearly states that such use is primarily for emergency operations; other transmissions are secondary.
- (5) Before going on the air, check carefully to make sure another station is not transmitting.

FIRE CONTROL HANDBOOK

- (6) Make messages brief and to the point; brief it in the same manner as a telegram.
- (7) Make a concerted effort to adhere to the standardized "clear text" words and phrases.
- (8) Schedule all messages that are of a daily routine reporting procedure.
- (9) When requesting a test, ask for a short test (5 count). Long tests (10 count) are for use of technicians only.
- (10) Adjustments and repairs to radio sets and antennae are to be made only by authorized radio technicians.
- (11) Use geographical location to designate fixed stations, both the calling station and called stations. The FCC assigns a CALL SIGN to each radio station license. CDF rules require this CALL SIGN be announced at the end of each transmission or exchange of transmission.
- (12) When making calls, first give the radio identifier of the station being called, followed by the radio identifier of the calling station.
- (13) When receiving calls, reply with the radio identifier of your station. If more than one party

FIRE CONTROL HANDBOOK

is calling at the same time, select the party you want to answer first and announce calling party's station or unit radio identifier followed by your radio identifier. No other comment is necessary unless you wish to acknowledge but are not ready for traffic. In this event, add the phrase "Stand by" before giving your radio identifier.

- (14) When a message has been received, acknowledge by: (1) repeating the calling unit radio identifier; (2) stating the word "Copy" or repeating enough of the message to confirm to the calling unit you have received the message; (3) announce time; and (4) give your CALL SIGN.
- (15) Keep the microphone at the proper distance (3 to 4 inches) from your mouth. Pronounce words distinctly and rather slowly; the normal rate used for dispatching should be between forty to sixty (40 to 60) words a minute.

FIRE CONTROL HANDBOOK

- (16) Your voice should be emotionless because emotion distorts the voice and may render it incapable of being understood.
- (17) Be impersonal when using the radio. Never use the name of the person to whom you are speaking or "I" in referring to yourself. There may be exceptions to this, but names should only be used as a last resort for identification.
- (18) Break long transmissions at 30 second intervals by using the "BREAK"; wait 10 seconds before resuming the transmission. This accomplishes two things: (1) it allows the called station to tell you if he has not received the message, and to ask for a repeat; (2) it allows any other station, which may have an emergency transmissison, to go ahead without waiting when minutes may be valuable.

e. AREA PERIMETER TABLE (USFS HANDBOOK)

Perimeter of fire (in chains) corresponding with area enclosed by it.

Acres	Square Chains	Probable Perimeter	Maximum Perimeter
0.1	1	5.3	7.0
0.2	2	7.5	10.0
0.3	3	9.2	12.2
0.4	4	10.7	14.2
0.5	5	12.0	16.0
0.6	6	13.1	17.4
0.7	7	14.1	18.8
0.8	8	15.0	20.0
0.9	9	15.9	21.2
1	10	16.8	22.4
2	20	23.9	31.8
3	30	29.1	38.8
4	40	33.8	44.6
5	50	37.5	50.0
6	60	41.3	55.0
7	70	44.6	59.4
8	80	47.6	63.4
9	90	50.4	67.2
10	100	53.3	71.0
20	200	75.3	100.4
30	300	92.3	123.0
40	400	106.4	141.8
50	500	119.0	158.6
60	600	130.2	173.6
70	700	140.6	187.4
80	800	150.3	200.4
90	900	159.5	212.6
100	1,000	168.2	224.2
125	1,250	188.1	250.8
150	1,500	206.0	274.6
175	1,750	222.5	296.6
200	2,000	237.9	317.2
400	4,000	334	446
600	6,000	406	540
800	8,000	478	635
1,000	10,000	532	710
1,200	12,000	581	775
1,400	14,000	626	835
1,600	16,000	670	893
1,800	18,000	712	950
2,000	20,000	750	1,000
3,000	30,000	922	1,230
4,000	40,000	1,065	1,420
5,000	50,000	1,191	1,588
6,000	60,000	1,305	1,740
7,000	70,000	1,410	1,880
8,000	80,000	1,506	2,006
9,000	90,000	1,596	2,128
10,000	100,000	1,681	2,242
11,000	110,000	1,762	2,360
12,000	120,000	1,839	2,452
13,000	130,000	1,912	2,550
14,000	140,000	1,986	2,648
15,000	150,000	2,055	2,740
16,000	160,000	2,119	2,826
17,000	170,000	2,184	2,912
18,000	180,000	2,248	2,998
19,000	190,000	2,311	3,082
20,000	200,000	2,371	3,162

1 Chain = 66 feet

1 Acre = 10 Square Chains

Perimeter of fire (in chains) corresponding with area enclosed by it.

f. AIRCRAFT CRASHES

The CDF is not equipped in most locations to fight aircraft crash fires. However, aircraft crashes in wildland areas can cause forest fires. Aircraft fires which spread to the surrounding vegetation will, of course, be dealt with as any other forest fire.

Occasionally attack units may arrive at the scene of a crash with no fire involved. Individual circumstances will dictate the action to be taken, but consideration should be given to the following:

- (1) A fire is possible and may start with explosive force.
- (2) If an engine is at the scene (parked upwind from the plane, if possible), wetting the plane and surrounding vegetation may reduce the possibility of fire occurrence or its spread.
- (3) Seriously injured persons may need to be removed.
- (4) In the absence of responsible air or police officials, the names and addresses of witnesses to the accident should be obtained if possible.

When the crash involves military aircraft, authorities have suggested the following steps also be taken in their respective order prior to the arrival of military personnel:

- (1) Restrain all unauthorized personnel to a minimum of 100 yards.
- (2) Advise the nearest military installation or civil aeronautics facility giving (if available) location and time of accident, aircraft serial number and type, name of the pilot, number of personnel involved with their names

FIRE CONTROL HANDBOOK

- and extent of injuries, number of fatalities, etc.
- (3) Guard the aircraft until the arrival of authorized military personnel.
 - (4) Release no information to anyone other than authorized military personnel.

g. SPECIAL MANNING PATTERNS

Special manning patterns (SMP) are progressively higher levels of manning beyond the normal day-to-day pattern. They are implemented in reaction to actual or predicted critical fire weather or fire situations. They insure an availability of forces which is stronger than normal. Rangers-in-charge, Regional Deputies and the Director can initiate SMP.

The intent of SMP A is to cover all state funded engines and fire control bulldozers. The intent of SMP B is to freeze days off for on-duty personnel and to gradually build up strength as personnel return from days off. The intent of SMP C is to recall personnel to duty.

Based upon need, SMP's may be declared for a single Ranger Unit, Conservation Camp or Fire Center (CCC) or for groups of administrative units, including statewide. Conservation Camps and Fire Centers (CCC) will not automatically be included each time the Ranger Unit they are located within goes on a SMP. The Regional Deputy may select individual Camps or Centers for SMP, and the number of crews affected at each. (On occasion, the Director may specify these details in his declaration of a SMP.) Each Camp or Center to be placed on a SMP must be specifically notified by the Regional ECC. An incident number will be assigned (Refer to H.B. 5500). Costs related to SMP, such as standby time for Fire Centers (CCC), may be charged to the order number.

Under these SMP's, it is intended that no one will be recalled from vacation or prevented from taking previously scheduled vacation.

FIRE CONTROL HANDBOOK

Special Manning Pattern A

1. Ranger Units - All state-funded fire engines and fire control bulldozers (including fire control bulldozers in camps) are manned 24 hours per day. All personnel not needed for this level of manning may take only normal time off.
2. Conservation Camps and Fire Centers (CCC) - All Conservation Camp crews or a stipulated number of crews are available for dispatch 24 hours per day. Fire Crew Supervisors over and above those needed at the camp for normal night-time manning may be either on call or on standby at Region option. All on-duty CCC crews are available for dispatch during their normal work day. Normal night-time manning by Fire Crew Supervisors will be provided at the Fire Centers (CCC). All personnel not needed for this level of manning may take only normal time off.

Special Manning Pattern B

1. Ranger Units - All state-funded fire engines and fire control bulldozers (Including fire control bulldozers in camps) are manned 24 hours per day. All state-funded, on-duty fire protection personnel (SFR I, II, FPO I, FC Specialist, Air Attack, Helitack and ECC personnel) are held on-duty. This manning pattern cancels days off for those personnel on-duty but does not recall off-duty personnel except those needed to cover engines and bulldozers.

FIRE CONTROL HANDBOOK

2. Conservation Camps and Fire Centers (CCC) - All Conservation Camp crews or a stipulated number of crews are available for immediate dispatch 24 hours per day, with a Fire Crew Supervisor for each crew available in camp at night. All on-duty Fire Center (CCC) crews are available for immediate dispatch during their normal work day. Normal night-time manning by Fire Crew Supervisors will be provided at the Fire Centers (CCC). All bulldozers with transports are manned 24 hours per day. Off duty personnel not needed for this level of manning may continue to take normal time off.

Special Manning Pattern C

1. Ranger Units - All state-funded fire engines and fire control bulldozers are manned 24 hours per day. All state-funded, on-duty personnel subject to fire control assignment are held on-duty or on-call, and all off-duty personnel are recalled to duty or to on-call status.
2. Conservation Camps and Fire Centers (CCC) - All Conservation Camp crews are available for immediate dispatch 24 hours per day. Sufficient Fire Crew Supervisors to man each available crew must remain in camp at night.
- All Fire Center (CCC) crews are available for immediate dispatch from 0800 until 2200 daily. Sufficient Fire Crew Supervisors to man each available crew must remain in the Center at night until 2200. An extension of the availability beyond 2200 for any CCC crews by a Region ECC will require Sacramento approval. Standby and overtime will be

FIRE CONTROL HANDBOOK

charged to a specific order number.

- All Camp and Center bulldozers with transports are manned 24-hours per day.

- All state-funded on-duty Camp and Center personnel subject to fire control assignments are held on duty or on call and all off-duty personnel are recalled to duty or to on-call status.

.4 PLANNING FUNCTION

a. TIME SCHEDULE

TIME	ACTIVITY	DUTY OF (Abbr.)
0600	Prepare Basic Facts Form, FI2.	R.S.O.
0600	Bring FC-33 up to date for on-and-off-shift changes	T.
0600	Compile resource night shift record	R.S.O.
0700	Night shift overhead interview	P.C.
0700	Progress report to Ranger Unit ECC	I.O.
0730	Preliminary night shift control plan	F.B. & P.C.
0730	FI2 Report to ranger unit ECC	R.S.O.
0800	Continue night shift plans	P.C. & I.O.
1200	Lunch	
1300	Recon of fire	P.C.
1300	Resource status	R.S.O.
1300	Net coordination	C.O.
1300	Start assignment sheets	I.O.
1330	FI2 Report to Ranger Unit ECC (Uncontained fires)	R.S.O.
1500	Line Boss report on Divisions and Action Plan adjustment	F.B. & P.C.
1500	Review of Recon and Maps report	F.B. & P.C.
1500	Obtain weather forecast	W.
1530	Action Plan completed and copies to Ground Resource Management, briefing outline and maps prepared	P.C. & I.O. S.C. R.M.
1530	Bring fire status map up to date	R. & M.
1630	Line overhead supper	
1700	Brief line overhead	F.B.-P.G.
1700	Crew supper	
1800	Night shift dispatched	S.C.
1830	FI2 Report to Ranger Unit ECC (Uncontained fires)	R.S.O.

b. 24-HOUR ACTIVITY SCHEDULE

TIME	PLANS CHIEF	INTELLIGENCE OFFICER	RESOURCE STATUS OFFICER	RECON & MAPS	SERVICE CHIEF	COMMUNICATION OFFICER
0600	BREAKFAST	BREAKFAST	PREPARES 0800 FIRE MEMO & RESOURCE LIST - NEXT SHIFT	DAY SHIFT SCOUTS OUT	DISPATCH DAY SHIFT	
0700	INTERVIEWS NIGHT SHIFT DIVISION BOSSES	PROGRESS REPORT TO RANGER UNIT	BREAKFAST		BREAKFAST	BREAKFAST
0730	BEGIN PRELIM. ACTION PLAN - NIGHT SHIFT	BEGIN PRELIM. ACTION PLAN - NIGHT SHIFT	0800 FIRE MEMO TO RANGER UNIT		SERVICE STAFF CONFERENCE	
0800	CONTINUE NIGHT SHIFT PLANS	CONTINUE NIGHT SHIFT PLANS OBTAIN WEATHER INFO.	WORK ON FIRE REPORT			
1000	CONTINUE NIGHT SHIFT PLANS			REPORT FROM SCOUTS		
1200	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH	LUNCH
1300	PHYSICAL RECON. OF FIRE	START SHIFT ASSIGNMENT SHEETS	ADVISES I.O. ON RESOURCE STATUS			ADVISES I.O. ON NET COORDINATION
1400		COMPILE INFO. FROM RECON. OBTAIN WEATHER INFO.		REPORT ON LINE CONDITIONS		
1500	LINE BOSS REPTS. ON DIVISIONS ACTION PLAN ADJUSTMENT, REVIEW RECON. REPT. AND WEATHER REPORT	ASSIST PLANS CHIEF WITH ACTION PLAN			ACTION PLAN ADJUSTMENT	
1530	ACTION PLAN COMPLETED	SHIFT ASSIGNMENTS FINISHED		MAPS FOR NIGHT SHIFT PREPD., FIRE STATUS MAP UPDATED	DISTRIBUTE COPIES OF NIGHT SHIFT ACTION PLAN TO GROUND RESOURCE MGMT.	
1600					COMMENCE WAKEUP	
1630					COMMENCE	
1700	BRIEF LINE OVERHEAD				FEEDING	
1800	SUPPER	SUPPER	PREPARE RESOURCE LIST-NEXT SHIFT	NIGHT SHIFT SCOUTS OUT	DISPATCH NIGHT SHIFT	SUPPER
1900	INTERVIEWS DAY SHIFT DIVISION BOSSES	PROGRESS REPORT TO RANGER UNIT	SUPPER		SUPPER	
1930	BEGIN PRELIM. ACTION PLAN - DAY SHIFT	BEGIN PRELIM. ACTION PLAN - DAY SHIFT	REST	FINAL DAY SHIFT SCOUT REPORT	SERVICE STAFF CONFERENCE	REST
2000	CONTINUE DAY SHIFT PLANS	CONTINUE DAY SHIFT PLANS OBTAIN WEATHER INFO.		REPORT FROM SCOUTS	REST	
2100	REST	REST		REST		
0300	LINE BOSS REPTS. ON DIVISIONS ACTION PLAN ADJUSTMENT, REVIEW RECON. REPT. AND WEATHER REPORT	COMPILE INFO. FROM RECON. ASSIST PLANS CHIEF. START SHIFT ASSIGNMENT SHEETS	ADVISES I.O. ON RESOURCE STATUS		ACTION PLAN ADJUSTMENT	ADVISES I.O. ON NET COORDINATION
0330	ACTION PLAN COMPLETED	PROGRESS REPORT TO RANGER UNIT SHIFT ASSIGNMENT FINISHED		MAPS FOR DAY SHIFT PREPD., FIRE STATUS MAP UPDATED	DISTRIBUTE COPIES OF DAY SHIFT ACTION PLAN TO GROUND RESOURCE MGMT.	
0400					COMMENCE WAKEUP	
0430					COMMENCE	
0500	BRIEF LINE OVERHEAD				FEEDING	

FIRE CONTROL HANDBOOK

c. FIRE BEHAVIOR GUIDES

(1) POTENTIAL SPREAD OF FIRE IN RELATION TO RELATIVE HUMIDITY, WIND, AND SLOPE

LEVEL TERRAIN - SLOPES LESS THAN 20%

Wind Velocity	Relative Humidity			
	Above 40	26 - 40	15 - 25	Below 15
0 - 12	Low	Moderate	Moderate	Dangerous
13 - 24	Moderate	Dangerous	Dangerous	Critical
Above 24	Dangerous	Dangerous	Critical	Critical

STEEP TERRAIN - SLOPES GREATER THAN 20%

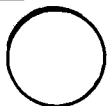
Wind Velocity	Relative Humidity			
	Above 40	26 - 40	15 - 25	Below 15
0 - 12	Moderate	Moderate	Dangerous	Critical
13 - 24	Dangerous	Dangerous	Critical	Critical
Above 24	Critical	Critical	Critical	Critical

- (a) Low (slow) - very little spread; spread of no consequence.
- (b) Moderate spread is less than one mile per hour.
- (c) Dangerous spread is 1-3 miles per hour.
- (d) Critical fire spread is over 3 miles per hour.

USE THIS OVERLAY ON:

U.S.G.S. 7.5 MINUTE QUAD (SCALE 1:24,000)

SLOPE



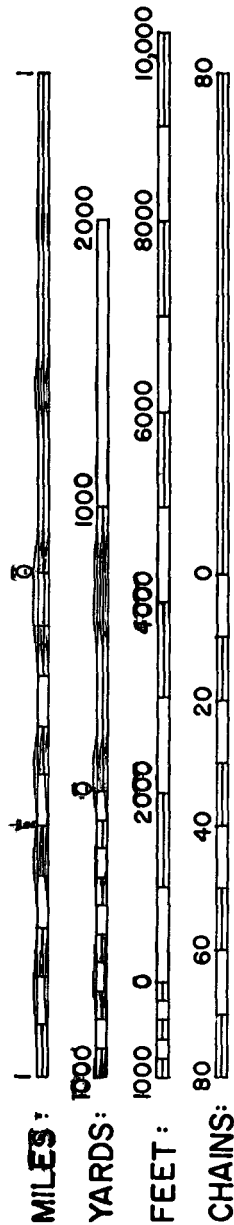
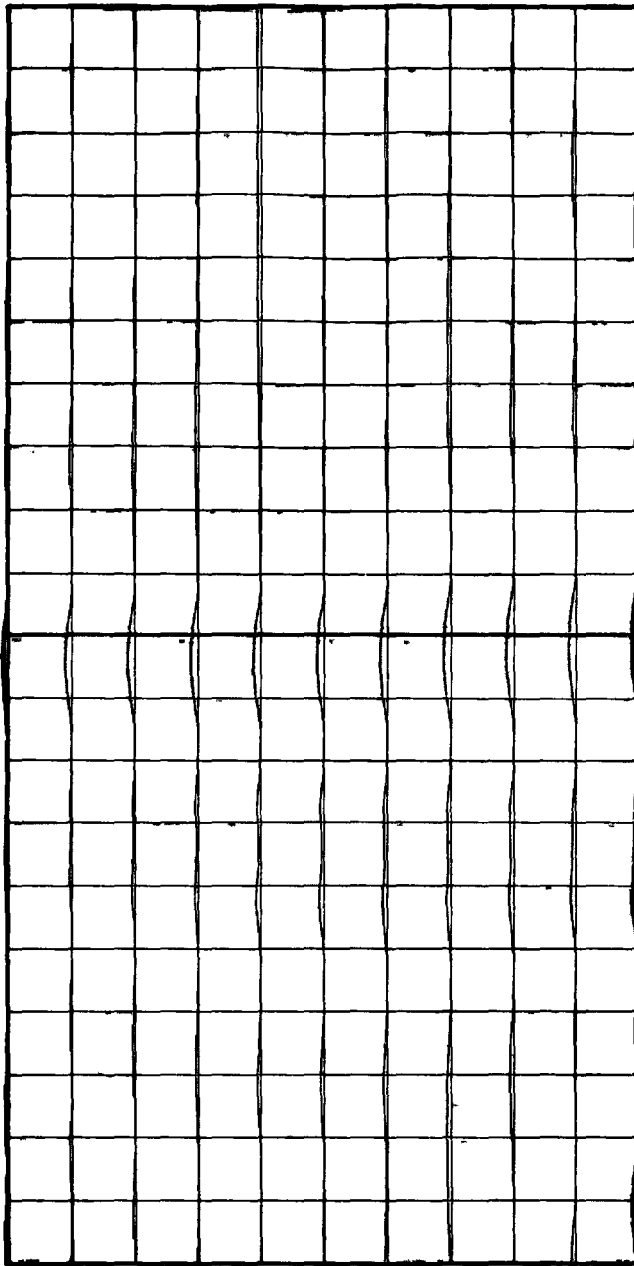
(1000 FT. I.D.)

1. PLACE CIRCLE OVER AREA.
2. COUNT CONTOUR LINES WITHIN CIRCLE (DO NOT COUNT ACROSS RIDGES OR CREEKS).
3. IN TABLE BELOW FIND NUMBER OF CONTOUR LINES COUNTED (NEXT TO PROPER CONTOUR INTERVAL FOR YOUR QUAD) AND READ % SLOPE AT BOTTOM.

		NUMBER OF CONTOUR LINES COUNTED						
CONTOUR INTERVAL	20	12	20	28	30	32	35	38
	40	6	10	14	15	16	18	19
	50	5	8	11	12	13	14	15
	80	3	5	7	8	8	9	10
% SLOPE ►		25	40	55	60	65	70	75

USE THIS OVERLAY ON:

U.S.G.S. 7.5 MINUTE QUAD (SCALE 1:24,000)



ACREAGE GRID

EACH SMALL SQUARE = 10 ACRES
EACH LARGE SQUARE = 1000 ACRES

DISTANCE SCALES

USE THIS OVERLAY ON:

U.S.G.S. 15 MINUTE QUAD (SCALE 1:62,500)

and C.D.F. ADMIN. MAP

SLOPE



(2000 FT. I.D.)

1. PLACE ~~CIRCLE~~ OVER AREA.
2. COUNT CONTOUR LINES WITHIN CIRCLE (DO NOT COUNT ACROSS RIDGES OR CREEKS).
3. IN TABLE BELOW FIND NUMBER OF CONTOUR LINES COUNTED (NEXT TO PROPER CONTOUR INTERVAL FOR YOUR QUAD) AND READ % SLOPE AT BOTTOM.

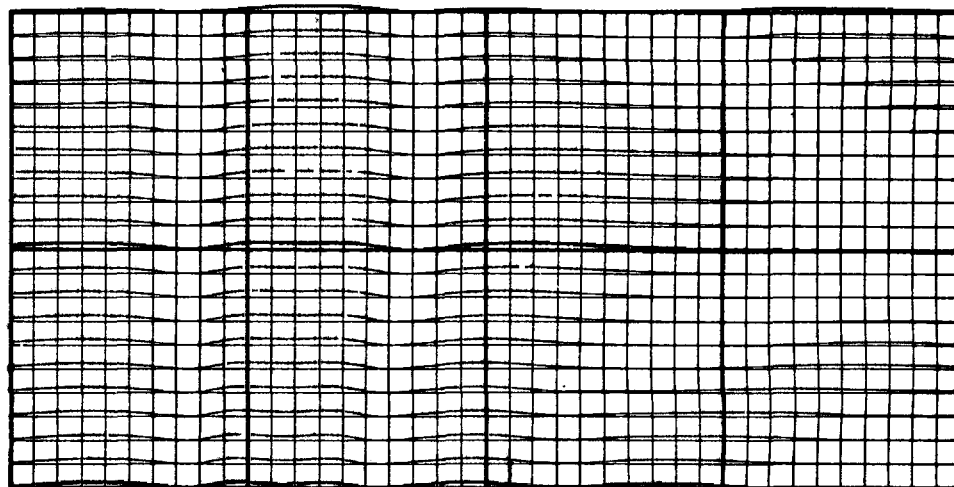
		NUMBER OF CONTOUR LINES COUNTED						
CONTOUR INTERVAL	40	12	20	28	30	32	35	38
	50	10	16	22	24	26	28	30
	80	6	10	14	15	16	18	19
	100	5	8	11	12	13	14	15
% SLOPE ►		25	40	55	60	65	70	75

USE THIS OVERLAY ON:

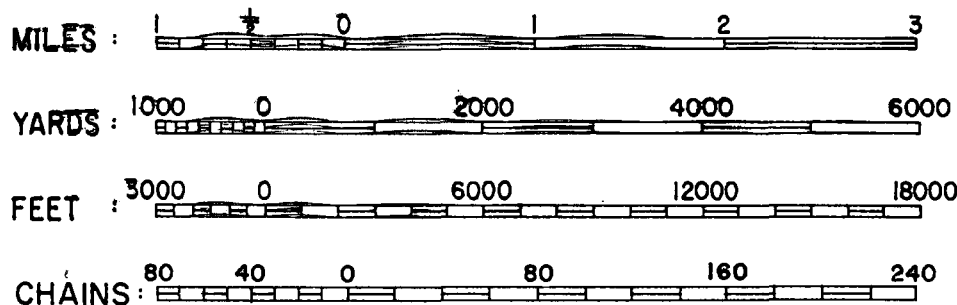
U.S.G.S. 15 MINUTE QUAD (SCALE 1:62,500) and C.D.F. ADMIN. MAP

ACREAGE GRID

EACH SMALL SQUARE = 10 ACRES
EACH LARGE SQUARE = 1000 ACRES



DISTANCE SCALES



(2) RATE OF SPREAD GUIDES

FUEL MOISTURE CONTENT RATE OF SPREAD FACTOR





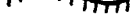




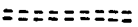
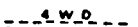






25%	1
20%	2
15%	3
10%	7
5%	20
3%	32

Note that as fuel moisture decreases, rate of spread can be expected to increase at a much more rapid rate.

(3) GENERAL RULES-OF-THUMB FOR RATE OF SPREAD CHANGES

- (a) As the fire history doubles, the amount of fire line to be constructed doubles.
- (b) Disregard fuel moisture changes in an *Initial Attack* situation. It won't change critically over a short period of time.
- (c) As the wind speed doubles, rate of spread doubles.
- (d) Fuel Type:
 - (1) From brush to grass, the rate of spread will approximately double.
 - (2) From timber mixed with brush to grass, rate of spread will approximately triple.
 - (3) From timber and second-growth to grass, rate of spread will approximately quadruple.
 - (4) From timber and second-growth to brush, the rate of spread will approximately double.
- (e) Slope; the rate of spread will approximately double for each 20% increase in slope.

d. FIRE CONTROL MAP SYMBOLS

	*Running Fire	*⊗ Origin
	*Uncontained Fire Edge	* ^H X Helispot (numbered with "x" at exact location)
	*Contained Handline	Ⓜ Helicopter Base (<i>Heliport</i>)
	*Contained Dozer Line	Ⓟ Base Camp
	*Dozer Line	Ⓢ Spike Camp
	Planned Line or Secondary	Ⓦ ^S Water Source—5000 Gal.
	Road: improved—Paved	ⓓ Drafting Source
	Road: unimproved—Dirt	*⊙ Spot Fire (arrow in direction of spread)
	Road: four wheel drive	^x ^x Snags
	Ridge	ⓖ Fuel Dump—
	Drainage	ⓖ Auto Gasoline Ⓜ Helicopter Gasoline ⓓ Diesel Ⓤ Unleaded
	Stream	*Ⓢ ^{SAFE} Safety Zone
	*Sectors	Staging Area (write in type- engines, hand crews etc.)
	*Divisions	Wind Speed and Direction
	Staging Area (write in type- engines, hand crews etc.)	
	Fire Command Center	
	General Headquarters	

* Shown in red

0 scale

Title Block

Fire Name _____ No. _____

Date _____ Time _____ Shift _____

Base Radio Call _____ Net _____

Acres _____ Damage _____

Est. Contain _____ Est. Control _____

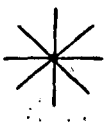
Nearest Town (miles, dir.) _____

Fire Boss _____ Radio _____ Net _____


Line Boss _____ Radio _____ Net _____

Asmbl. Authority _____ Radio _____ Net _____

Map by _____



Indicate direction of north



e. FIRE CONTROL MAP



f. BASIC FACT FORM, FI2.

The Planning function will prepare Basic Fact Form, FI-2, when Base Camp is established. Telecopiers should be used for transmittal from Base Camp to the Ranger Unit *Emergency Command Center (ECC)* when available.

The first FI-2 transmittal should contain as much information as is available. Complete information, as it becomes known, should be entered on subsequent reports.

Reports for *uncontained* fires will be transmitted to the Ranger Unit *ECC* on the following time schedule:

0730

1330

1830

After *containment*, the report will be transmitted at 0730 daily.

.5 SERVICE FUNCTION

a. SUPPORT FACILITIES

(1) TYPES

(a) BASE CAMP

The *Base Camp* is a location where primary support functions are provided for the fire control organization. The GHQ and *Fire Command Center* will usually be located here. There will be one *Base Camp* per fire, and its location will be relatively permanent.

(b) SPIKE CAMP

A *Spike Camp* is located within the general fire area to support a segment of the fire control organization. It may be equipped to provide food, water, rest, and sanitation services.

Spike Camps are established to reduce travel times to assigned work areas and to reduce the number of resources requiring support within the *Base Camp*

operation. More than one *Spike Camp* may be established for a fire area. For example, *Spike Camps* may be established for:

- (1) Attack personnel on a segment of fireline inaccessible by road and where travel time to-and-from *Base Camp* is excessive.
- (2) Large numbers of engines or hand crews when their assigned work areas are a considerable distance from *Base Camp* or when it is desirable to provide service, rest, and sleeping areas separate from *Base Camp*.

(c) STAGING AREAS

A *Staging Area* is a location where attack units are:

- (1) Strategically assembled near a fire area in anticipation of a fire control assignment.
- (2) Provided support while enroute to-and-from a fire/fires from a considerable distance.

A *Staging Area* will normally provide vehicle parking; however, temporary feeding, rest, maintenance, or sanitation facilities may be necessary to meet specific requirements.

Staging Areas may be established, re-located, or abolished as necessary to support the fire control organization.

(2) SITE SELECTION

The importance of selecting an adequate site and establishing the appropriate physical arrangement for *Support Facilities* can not be overestimated. Poorly located or inefficiently run *Support Facilities* can adversely affect fire control operations. They are the hub of all activities on a large fire.

A number of important considerations must be reviewed in selecting a site:

- (a) Easy access to the most serious problem areas of the fire.
- (b) Near a road leading to sources of supplies.
- (c) Site should be large enough to handle the variety of forces that may be assigned to the fire with sufficient room for expansion.
- (d) Flat areas are desirable.
- (e) Shade is mandatory for rest during the day.
- (f) Commercial phone, power service, and sanitary facilities are desirable, but may not be possible.
- (g) Adequate supply of water.
- (h) Dependable CDF radio communications must be possible.
- (i) Safe from potential encroachment of the fire (Don't overlook this factor. Many camps have been overrun by fire in past years!)

(3) PHYSICAL ARRANGEMENT

The relationship of the several phases of activity to each other must be taken into consideration when establishing the physical arrangement of the Support Facility:

- (a) Parking area or "Motor Pool" should be near the entrance.
- (b) Parking area or "Motor Pool" should be separated from other facilities as much as possible, within reason, to reduce the impacts of noise and dust on the other facilities.
- (c) Vehicle fueling should be in the parking area or "Motor Pool". Post "No Smoking" signs around fueling area.

- (d) Kitchen should be in the shade.
- (e) Kitchen should be readily accessible by personnel and supply vehicles.
- (f) Dusty areas should be avoided or the dust reduced by watering the area.
- (g) Latrines and garbage areas should be downwind.
- (h) All crews and individuals shall be assigned specific areas for sleeping and resting. So that crews and individuals can be readily contacted, if needed, there should be no deviation from the assigned areas.
- (i) Sleeping areas should be in the shade, at least for crews sleeping in the day, and be located away from sources of noise and disturbance.
- (j) Sleeping areas for wards and inmates should be segregated from areas for regular personnel.
- (k) Free personnel i.e., engine crews, ecology crews, etc., can be assigned the same general sleeping and resting area. However, persons in organized crews must be kept as a group ready for feeding or immediate dispatch.
- (l) Locate wash areas to avoid congestion and drainage problems.
- (m) Access is necessary for wash areas serviced by a tank truck.
- (n) All organized crews should be fed as a unit.
- (o) Eating areas should be:
 - 1. shaded,
 - 2. close to kitchen,
 - 3. away from mess line, and
 - 4. away from wash area.

- (p) Accessory food items (salt, butter, jam, etc.) should be placed on separate tables so they will not restrict flow of the mess line.
- (q) *GHQ* and *Planning* function should be:
 1. Located away from congregation areas.
 2. Roped off, if necessary, to keep unauthorized personnel from disturbing their activities.
- (r) Location of timekeeping sub-function should be convenient to arriving and departing forces.
- (s) Adequate sanitary facilities (latrines, showers, wash areas, etc.) should be arranged for.
- (t) Separate locations should be provided for Salvation Army, Military units, OES, and other similar agencies.
- (u) Camp facilities should be properly posted.

b. CONSERVATION CAMP CREWS (CDC, CYA, County, Federal)

CDF personnel assume the responsibility for wards and inmates while enroute to, working on, or returning from the fire line, and in camp outside of the sleeping area. Upon arrival at the sleeping area, wards and inmates will usually be turned over to the appropriate Correctional Officer who will administer their total welfare. In the absence of Correctional Officers, responsible CDF personnel will continue to supervise the actions of wards and inmates.

Whenever practical, crews should sleep in their own Conservation Camp. If travel exceeds 30 minutes each way, and the driver has been awake for 17 hours,

FIRE CONTROL HANDBOOK

the crews should be retained in *Support Facilities* for sleeping (Refer to Page 266, Driver Rest Periods).

The following will pertain to inmate and ward crews in *Support Facilities*:

- (1) Inmates and wards should not be permitted to intermingle with regular personnel.
- (2) Assigned sleeping areas should:
 - (a) Not constitute unreasonable custodial problems.
 - (b) Be separated by custodial agency.
 - (c) Be kept separate from areas assigned to free people.
 - (d) Be separated from "business functions" of the camp.
 - (e) Provide water for drinking and washing in immediate vicinity.
 - (f) Provide adequate sanitary facilities for the number assigned to each area.
 - (g) Allow easy access to kitchen area.
 - (h) Provide cleared spaces for warming fires, if permitted.
- (3) *Spike Camps* for sleeping and resting away from the *Base Camp* should be considered and utilized as necessary.

FIRE CONTROL HANDBOOK

c. TIME SCHEDULE

TIME	ACTIVITY	DUTY OF (Abbr.)
0600	Base Camp Inspection	SC
	Breakfast	CM, SM, & S&RM
	Brief Pilots & Heliport Mgr. Crew Shuttles	HM
0700	Off Line Receive Night Shift	GRM
	Commence Off Shift Equipment P.M.	S&RM
0800	Service Chief Conference	All Staff
0900	Service Section Shift Change	
1000	Meet W/Plans & Command Re: Night Shift	SC
	Requisitions to Supply	CM, GRM, HM, & S&RM
	Check Camp Operations	CM & GRM
1100	Equip. Readiness Status Report to Gr. Res.	S&RM & GRM
	Visual Inventory	SM
1200	Lunch	
1300	Plans Chf. Recon. Flt. Order Next Day Heli.	HM
1400	Briefing from Service Chief	All Staff
	Final Equip. Status Report	S&RM
	Begin Dinner Prep., Supplies Ready	DM & SM
1500	Actn Pln Adjst Meet W/Line, Serv. of Equip.	SC & S&RM
1530	Dist. Copies Of Night Shift Action Plan	SC
1600	Commence Wake-up & Night Feeding	CM & GRM
	Start Crew Supper	
1700	Commence Crew Shuttles & Line Supplies	SM, HM & CM
1800	Night Shift Dispatched to Line	GRM
1900	Rcv. Day-Shift Off Lines, Equip. P.M.	GRM & S&RM
2000	Service Staff Conference	All Staff
2100	Section Shift Change	Staff
2200	Meet W/Plans-Day Shift	SC
	Requisition Supplies	CM, S&RM & SM
	Equip. Readiness Status Report to Gr. Res.	S&RM
	Check Camp Operation	CM
2400	Lunch	
0200	Briefing From Service Chief	All Staff
	Begin Breakfast Preparation	CM
	Final Equip. Status Report	S&RM
0300	Action Plan Adjustment	SC
	Meet W/Line Re: Service on Line	S&RM
0330	Distribute Copies of Day Shift Action Plan	All Staff
0400	Wake-Up, Coordinate W/Air Attack Boss	HM
0500	Distribute Line Supplies	SM
0530	Dispatch Day Shift to Line	GRM

d. 24-HOUR ACTIVITY SCHEDULE

TIME	SERVICE CHIEF	CAMP MANAGER	GROUND RESOURCE MGR.	SUPPLY MANAGER	HELICOPTER MANAGER	SERVICE & REPAIR MGR.
0600	Base Camp Inspection	Breakfast		Breakfast	Brief pilots & Heliport Mgr. Commence crew shuttles.	Breakfast
0700	Breakfast	Off shift feeding	Off line Receive nite shift			Commence off shift equipment. P.M. Evaluate repairs needed
0730					Inspect heliport	
0800	Service Chief Conference	Service Chief Conference	Service Chief Conference	Service Chief Conference	Service Chief Conference	Service Chief Conference
0900	Service Section Shift Change	Service Section Shift Change	Follow-up on equipment service		Cease crew shuttles	Service Section Shift Change
	Meet with Plans & Command re: nite shift	Requisitions to Supply Manager Check Camp operation	Requisitions to Supply Manager Check Camp operation	Receive requisitions orders supplies	Requisitions to Supply Manager	Requisitions to Supply Manager
1000			Equipment status from Service & Repair	Brief visual inventory	Inspect helipots	Equipment readiness status report to Ground Resources
1100						
1200	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
					Plans Chief Recon Flight. Order next days helicopters	
1300						
	Briefing from Service Section	Brief Service Chief Begin dinner prep.	Brief Service Chief	Supplies ready Brief Service Chief	Brief Service Chief	Final Equipment status report to Ground Res. Mgr. & Service Chief
1400						Meet with line re: service of equipment on the line
	Action plan adjustment meet with line re: service of equipment on line.					
1500	Distribute copies of nite shift action plan	Receive nite shift action plan	Brief sub-function. Receive nite shift action plan.	Brief sub-function. Receive nite shift action plan.		Receive nite shift action plan
1530						
1600		Commence nite feeding	Commence wake-up	Distribute line supplies	Inspect heliport	
1700					Commence crew shuttles	
1730			Dispatch nite shift to line			
1800	Base camp inspection	Supper		Supper		Supper
1900	Supper	Off shift feeding	Receive day shift off line			Commence off shift equipment P.M.
			Supper			Evaluate repairs needed
1930					Cease crew shuttles supper. Consult with Air Attack Boss	
2000	Service Staff Conference	Service Staff Conference	Service Staff Conference	Service Staff Conference	Service Staff Conference	Service Staff Conference
2100	Section Shift Change	Section Shift Change	Follow-up on equipment Service Manager Equipment status from Service & Repair	Follow-up on equipment Service Manager Equipment status from Service & Repair	Rest	Service Section Shift Change
	Meet with Plans re: day shift	Check camp operation requisitions to supply		Orders supplies. Brief visual inventory	Rest	Requisitions to Supply Manager. Equipment readiness status report to Ground Resources
2200						
2400	Lunch	Lunch	Lunch	Lunch	Rest	Lunch
	Briefing from Service Section	Begin breakfast preparation. Brief Service Chief	Brief Service Chief	Supplies ready Brief Service Chief	Rest	Final equipment status report to GRM & Service Chief. Brief Service Chief
0200						
	Action plan adjustment				Rest	Meet with line re: service of equipment on the line
0300						
	Distribute copies of day shift action plan	Receive day shift action plan	Brief sub-function commence wake-up	Brief sub-function commence wake-up	Rest	Receive day shift action plan
0330		Commence day feeding			Wake-up	
0400					Receive day shift action plan. Coordinate with Air Attack Boss	
0500				Distribute line supplies	Breakfast	
0530			Dispatch day shift to line			

FIRE CONTROL HANDBOOK

.6 FINANCE FUNCTION

a. EMERGENCY FIRE SUPPRESSION AND DETECTION FUND

The "*Emergency Fire Suppression and Detection Fund*" (*Emergency Fund*) is used during fire situations when CDF *Initial Attack* forces are unable to cope with fire problems. The CDF's regular support budget does not contain funds to support a substantial augmentation of control forces needed to contain a fire beyond *Initial Attack*.

FIRE CONTROL HANDBOOK

The use of the *Emergency Fund* (and the accompanying departure from normal State business processes) must be guided by the good judgment and integrity of the responsible fire official authorizing *Emergency Fund* expenditures. All employees will be accountable for following the general guides listed under "**Expenditure Authorization**," "**Conditions for Use**," and "**Proper Expenditures**" below.

The Rangers-in-Charge and Regional Chiefs will be responsible for reviewing the use of the *Emergency Fund* to insure that expenditures are being made within these policy guidelines.

(1) EXPENDITURE AUTHORIZATION

State Forest Ranger I and higher administrative levels shall normally authorize the expenditure of *Emergency Funds*. An exception shall be made for fire suppression class employees (1) when acting in the capacity of a *Fire Boss*, (2) *Service Center* personnel when making *Emergency Fund* expenditures to support *Extended Attack* and *Major Fires*, or (3) when on travel status outside their home Ranger Unit enroute-to-or-from a going fire, *Staging Area*, and move-up or cover assignment.

Accountability for *Emergency Fund* authorizations must be stressed. All personnel authorizing *Emergency Fund* expenditures are personally responsible for complying with established rules, even though the actual purchase may be made by another employee.

(2) CONDITIONS FOR USE

Proper conditions for expenditure of the *Emergency Fund* includes the following:

- (a) When CDF *Initial Attack* units are fully committed to going fires and there is a significant need for reinforcements.
- (b) When the potential for *Extended Attack* or *Major Fires* exists due to extreme fire weather conditions and available *Initial Attack* resources are

depleted and there is a need for additional personnel and equipment for move-up or cover at fire stations and/or *Staging Areas*.

- (c) When rental equipment located close to the fire can be used advantageously. Upon arrival of additional *Initial Attack* units, continued use of rental equipment should be judged in light of current fire conditions and released as soon as possible.
- (d) When special equipment, such as nurse tankers or fuel trucks, are needed to support the CDF's personnel and equipment.
- (e) When CDF/USFS contract air-tankers, helicopters, and/or fixed wing utility aircraft are used on a fire beyond the *Initial Attack Period*; i.e., the elapsed time beginning with the dispatch of the first air or ground attack units until (1) three hours have elapsed, or (2) until it is obvious (if less than three hours) that the fire will expand beyond an *Initial Attack Fire*.
- (f) When move-up or cover aircraft are necessary and aircraft are dispatched from outside the Region for this purpose. The rules in (e) above shall apply once move-up aircraft arrive at an air attack base. Move-up or cover aircraft within the Region will be charged to the operating budget.
- (g) When intermittent helicopters or fixed wing utility aircraft

are used and contract aircraft are not available, or the planned mission cannot be accomplished within an existing contract.

(3) PROPER EXPENDITURES

Expenditures from the *Emergency Fund* can include:

- (a) Rental of motorized equipment to scout a fire, transport personnel and equipment, and work the fire line.
- (b) Rental of other firefighting equipment such as bulldozers, water tankers, chain saws.
- (c) Rental of helicopter or fixed wing utility aircraft for supplemental detection, transportation of personnel and supplies, and reconnaissance.
- (d) Rental of aircraft as outlined under Conditions For Use Items (e), (f), and (g) above.
- (e) Purchase of retardants.
- (f) Payment of wages to non-CDF organized crews and personnel needed for fire suppression.
- (g) Purchase of subsistence items and supplies necessary for food preparation and other costs for *Support Facilities* such as a *Base Camp*, *Spike Camp*, or *Staging Area*.
- (h) Cost of providing and installing additional communications for *Extended Attack* and *Major Fires*, such as temporary telephone circuits, radio communications facilities, and overtime costs of telecommunications technicians

FIRE CONTROL HANDBOOK

necessary for installation and maintenance.

- (i) Purchase of gasoline, jet fuel, oils, greases, diesel fuel and liquified petroleum gas delivered by the vendor to **Extended Attack** or **Major Fires**, and staging areas. These products must be obtained from a contract vendor unless he cannot or will not supply fuels and lubricants.
- (j) Rental of special equipment and services such as cold storage reefers, latrines, and showers.
- (k) Reimbursement to other agencies for services rendered with OES engines.
- (l) Reimbursement to other agencies, such as USFS and BLM, with whom the CDF has Cooperative Fire Protection Agreements which include payment for "assistance by hire" under specified conditions.
- (m) Purchase of restaurant meals for firefighters during fire suppression activities.

Restaurant meals may be purchased for firefighters when they are unable to return to a CDF facility within a reasonable time period of their normal meal time. Restaurant meals will not be purchased when it is reasonable and efficient to provide steam table meals for firefighters, nor when **Support Facility (Base Camp, Spike Camp, and Staging Area)** meals or lunches are provided. Authorization from the **Fire Boss** is required for purchase of restaurant meals. Meals and lodging can be purchased by either one of two ways:

FIRE CONTROL HANDBOOK

1. Subpurchase Order (SPO) (Refer to instructions and sample.)
SPOs for meals are limited by Board of Control Rule 707(d) and departmental memorandum. Meals (breakfast, lunch or dinner) purchased under authority of these rules shall not exceed the maximum allowance as established in Rule 706, or \$9.00, for each person per meal. Only those persons who are directly involved in suppressing fire(s) qualify. The advantage of the SPOs is the 25-mile waiver and \$9.00 Board of Control maximum.
2. Employee on travel status, with reimbursement by the filing of a Travel Expense Claim (Form 262). Travel Expense Claims are limited by Board of Control Rule 706. You may be required to be 25 miles from your duty station, must work 2 hours before or after the regular scheduled work day and the actual cost not to exceed:

Breakfast	\$3.00
Lunch	\$5.50
Dinner	\$9.00
Lodging	\$29.00

Additional lodging in designated High Cost Areas of downtown San Francisco, Los Angeles and San Diego to \$35.00 with receipts. Incidentals to \$3.50 for each 24-hour period. Refer to the Manual of Instructions 2572.

FIRE CONTROL HANDBOOK

- (n) Payment for meals and lodging or travel subsistence allowance (per diem) for firefighting personnel on travel status enroute to-or-from a going fire, *Staging Area*, and move-up or cover.
- (o) Purchase of property and equipment items, only with prior approval of the Director.
- (p) Purchase of controlled items regulated by complement standards (previously called expendable accountable, such as fire hose, hand tools, nozzles, adaptors, etc.,) only with approval of the Director.
- (q) Other items may be considered proper expenditures against the *Emergency Fund*. Any addition to the above list must be properly justified by the employee authorizing the expenditure.

b. MANAGING BASE CAMP/STAGING AREA MATERIEL PURCHASED FROM EMERGENCY FUND.

Excess materiel obtained through *Emergency Fund* purchases shall be properly inventoried and documented upon closure of *Base Camp* or *Staging Area*.

When the decision has been made to close a *Base Camp* or *Staging Area*, the *Service Chief* or officer in charge will be responsible for notifying

FIRE CONTROL HANDBOOK

the Ranger Unit Headquarters. This notification shall be made at least 12 hours prior to the anticipated closure. The Ranger Unit will promptly notify the Regional Business Manager or Materiel Manager.

The Regional Office will assign one person experienced in materiel procedure, with other staff help as needed, to make a thorough physical inventory of all excess materiel and supplies purchased from the *Emergency Fund*. A Ranger Unit representative, preferably the Service Center Supervisor, shall normally accompany the inventory team to *Base Camp* or *Staging Area*. This team should arrive prior to the last meal being served.

Provision will be made for storing emergency fire suppression excess items in service centers for future transfer to other emergency fire situations or charging out to administrative units' operating budget accounts.

NOTE: Detailed instructions concerning excess materiel obtained through *Emergency Fund* purchases are contained in Section 2667 of the Material Handbook.

c. SUB-PURCHASE ORDERS (AO-40)

A Sub-Purchase Order (SPO) represents two documents; a vendor's invoice and an authorization to pay. When used for payments from the *Emergency Fund*, many normal procedures of State Government are waived, i.e., competitive bids, service agreements, confirming orders, purchase of non-contract items, etc.

SPO's may be used for payment for all goods and services which are proper expenditures of the *Emergency Fund*, except for:

- (1) Wages.
- (2) Purchase of property and equipment and controlled items. Refer to Proper Expenditures Section, Items (o) and (p).
- (3) Reimbursement to agencies for use of OES engines.

FIRE CONTROL HANDBOOK

(1) INSTRUCTION AND PREPARATION

The following items must be included when preparing SPO's for expenditures from the *Emergency Fund*:

- (a) The phrase "GOING FIRE" and name of fire is to be placed at the bottom of the description space.
- (b) The incident number is placed in the upper right hand corner of the expenditure coding block following the coding for "Department" and "Fiscal Year."
- (c) Purchases for goods exceeding \$1,000 must have the following statement affixed to the description section of the SPO: "This emergency purchase, without the taking of bids, was made pursuant to Section 14809 of the Government Code."
- (d) When purchasing prepared meals, the following instructions will apply:
 - 1. The following statement should be written in the description portion of the SPO: "The meals covered by this invoice were consumed by firefighters enroute to (describe location)." If travel to-or-from a Staging Area or move-up or cover assignment, and not directly related to a specific fire, your statement is to be modified to show "Staging Area and Location" or "Move-Up or Cover and Location" rather than "Going Fire."

FIRE CONTROL HANDBOOK

SUBPURCHASE/CONTRACT/DELEGATION ORDER

PLEASE TYPE OR PRINT

CONTRACT/SPR-DEL. NO.

13044

0.10.1

CALIF. DEPT. OF FORESTRY

DATE	MO	DAY	YR
	11	16	80

~~SAME~~

AGENCY ORDER NO.

VENDOR THIS NUMBER
MUST BE SHOWN ON ALL BILLS

COMPLETE ONLY WHEN TO BE USED AS ENCLOSURE

I hereby certify that this is a true and just bill and payment has not been received.

VENDOR'S INVOICE NO.
1299

RED BLUFF, CA. ZIP 96080

VENDOR'S SIGNATURE
Wilbur Van Mar
TITLE (Owner, Mgr., Clerk, etc.)
Asst. Mgr.

VENDOR NUMBER	S/B	ETH
---------------	-----	-----

NOTICE TO MERCHANT

1. Show how state contract numbers and contract purchase order numbers are calculated.
2. Show how a state contract is offered to the invoice.
3. Show how a contract is calculated for the invoice.

4. PAYMENT OF ALL RECEIPTS HEREIN SHALL BE MADE BY CHECK OR MONEY ORDER. INVOICE INCLUDES RECEIPTS FROM SPOOFER IN MARKET.
5. PACKING OR SHIPMENT CHARGES WILL NOT BE ALLOWED UNLESS STATED IN THIS ORDER.

DATE PAID

SHIP VIA

F.O.B.

TERMS

LINE NO.	QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENSION
1	4	EA		BREAKFAST	\$8.49	\$33.96
2						
3						
4						
5				THE MEALS COVERED BY THIS INVOICE		
6				WERE CONSUMED BY FIREFIGHTERS		
7				SUPPRESSING THE "LAVA" FIRE.		
8				A. CAPP, FC; E. BRANDON, FAE; W. FALLS,		
9				G. WATERS, FF'S.		
10				"RULE 707(d) MEALS"		

PURCHASE AUTHORIZED BY: (Signature, Title)										PHONE NUMBER									
M. Phillips, Ranger II																			
DEPARTMENT AND FISCAL YEAR										INCIDENT NUMBER									
3-1										23-1467									
PURCHASE THIS FUNCTION AND LOC.																			
SUBSET ALLOTMENT & EXPEND. CLASSIF.										22200									
CLAIM CONTINUE NO.																			
PURCHASE REFERENCE NO.										10									
AUGUST																			

CERTIFICATION OF RECEIPT		SUB-TOTAL \$ 33.96	
DATE RECEIVED 1-16-80		SALES TAX 2.04	
SIGNATURE F. Bills		TOTAL \$ 36.00	
TITLE FIRE CAPTAIN			
UNIT		LOCATION "LAVA FIRE"	
VEHICLE LICENSE NUMBER		C.O.F.#	

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FOI 87149-100-0513

FIRE CONTROL HANDBOOK

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY

UNPURCHASE/CONTRACT/DELEGATION ORDER
0-40 (6-78) (IN LIEU FORM 83)

PLEASE TYPE OR PRINT

AGENCY BILLING CODE
113044

CONTRACT/SPS/DEL. NO.

PAGE OF PAGE

0101

CALIF. DEPT. OF FORESTRY	MAIL INVOICE IN TRIPLICATE TO: CALIF. DEPT. OF FORESTRY	DATE MO DAY YR. 11/16/80
1050 PARK VIEW	SAME	AGENCY ORDER NO.
REDDING, CA		VENDOR: THIS NUMBER MUST BE SHOWN ON INVOICE

ENDOR KENTUCKY FRIED CHICKEN

ADDRESS 500 FLOKIN ROAD

SACRAMENTO, CA ZIP

VENDOR NUMBER S/B ETH

COMPLETE ONLY WHEN TO BE USED AS VENDOR'S INVOICE

I hereby certify that this is a true and just bill and payment has not been received.

VENDOR'S INVOICE NO.

501

VENDOR'S SIGNATURE

Janie Wall

TITLE (Owner, Mgr, Clerk, etc.)

Asst Manager

- SHOW OUR STATE CONTRACT NUMBER AND CONTRACT PURCHASE ORDER NUMBER ON YOUR INVOICE.
- SHOW CASH DISCOUNT OFFERED ON YOUR INVOICE.
- SUBMIT INVOICE IN TRIPLICATE IF NOT ON PRINTED BILL. HEAD VENDOR PLEASE SIGN INVOICE

NOTICE TO MERCHANT

- 4. SUBMIT ORIGINAL RECEIPTED EXPENSE BILLS IF YOUR INVOICE INCLUDES PREPAID TRANSPORTATION CHARGES.
- 5. PRICING OR SERVICE CHARGES WILL NOT BE ALLOWED UNLESS STATED IN THIS ORDER.

DATE WANTED SHIP VIA F.O.B. TERMS

LINE NO.	QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENSION
1	4	EA		LUNCHES	4.00	16.00
2						
3						
4				THE MEALS COVERED BY THIS		
5				INVOICE WERE CONSUMED BY		
6				FIREFIGHTERS ENROUTE TO		
7				REDDING - J. JONES, FC, S.		
8				MATSON, FAE, B. JAMES, D. DOE		
9				FF'S		
10				"GOING FIRE"		

PURCHASE AUTHORIZED BY: (Signature/Title) M. Phillips, Ranger II	PHONE NUMBER	CERTIFICATION OF RECEIPT	SUB-TOTAL
DEPARTMENT AND FISCAL YEAR 3-1	INCIDENT NUMBER 23-1467	DATE RECEIVED 11-16-80	SALES TAX
FUNCTION AND LOCATION 24510		SIGNATURE J. Jones	TOTAL
BUDGET ALLIANCE 24510		TITLE Fire Captain	
CLAIM SCHEDULE NO.		UNIT	LOCATION "LAVA FIRE"
PURCHASE REFERENCE NO.		VEHICLE LICENSE NUMBER	C.D.F.
AMOUNT			

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Controller's Copy (Goldenrod)

PDF 8766-100-004

FIRE CONTROL HANDBOOK

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY

SUBPURCHASE/CONTRACT/DELEGATION ORDER

AD-40 (8-78) (11-81) (FORM 451)

PLEASE TYPE OR PRINT

Accepted Billing, Inc.
13044

CONTRACT/PO DEL. NO.

PAGE OF FORM
0101

CALIF. DEPT. OF FORESTRY	B I L L T O	CALIF. DEPT. OF FORESTRY	DATE 11/11/80
1050 PARKVIEW		SAME	AGENCY ORDER NO.
REDDING, CA. 96099			VENDOR'S INVOICE MUST BE SUBMITTED WITH INVOICE

VENDOR DENNYS	COMPLETE ONLY WHEN TO BE USED AS VENDOR'S INVOICE
ADDRESS 1000 FRONTAGE RD. RED BLUFF, CA 96080	I hereby certify that this is a true and just bill and payment has not been received.
VENDOR NUMBER	VENDOR'S SIGNATURE John Smith Title (Owner, Mgr., Clerk, etc.) Manager
S/B	ETH

1. SHOW OUR STATE CONTRACT NUMBER AND CONTRACT PURCHASE ORDER NUMBER ON YOUR INVOICE.
2. SHOW CASH 2 SIGNATURES OFFERED ON YOUR INVOICE.
3. SUBMIT INVOICE IN TRIPLICATE, IF ANY ON PRINTED, BILL WHEN CASH 2 SIGNATURES OFFERED ON YOUR INVOICE.

NOTICE TO MERCHANT

4. PRINT ORIGINAL RECEIPTED EXPENSE BILLS IF ONLY INVOICE INCLUDES PREPAID TRANSPORTATION CHARGES.
5. PRICING OR DRAINAGE CHARGES WILL NOT BE PAID UNLESS STATED IN THIS ORDER.

DATE WANTED	SHIP VIA	P.O.B.	TERMS	LIST NO.	QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENSION
				1	4	EA.		DINNERS	\$8.49	33.96
				2						
				3						
				4				THE MEALS COVERED BY THIS INVOICE		
				5				WERE CONSUMED BY FIREFIGHTERS		
				6				ENROUTE TO REDDING - J. JONES, FC		
				7				S. MATSON, FAE, B. JAMES, D. DOE, FFS		
				8						
				9						
				10				"GOING FIRE"		

PURCHASE AUTHORIZED BY: (Signature) Title M. Phillips Manager II	PHONE NUMBER	CERTIFICATION OF RECEIPT	SUB-TOTAL 33.96
DEPARTMENT AND FISCAL YEAR 3-1	INCIDENT NUMBER 23-1467	DATE RECEIVED 11-16-80	SALES TAX 2.04
FUNCTION SUB FUNCTION AND LOC.		SIGNATURE J. Jones	TOTAL 36.00
SUBJECT ALIAS/WH/ B EXPEND. CLASIF	22200	TITLE Fire Captain	
ELIMIN RECEIVABLE NO.		VEHICLE LICENSE NUMBER	LOCATION "LAVA FIRE"
PURCHASE REFERENCE NO. 10			C.O.P.

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FIRE CONTROL HANDBOOK

2. The purchase of prepared meals are limited by Board of Control Rule 707(d) and Departmental Memorandum, and the actual cost of any meal will not exceed \$9.00 for each employee, including taxes. A notation "Rule 707(d) Meals" will be prominently written in the description portion of the SPO.
 3. List the names and civil service classification of personnel to whom the meals were furnished. When large crews, such as YCC and CDC, are being fed, list the name(s) of the crew(s) and number of meals fed.
 4. Tips are not an acceptable charge to the State and therefore must not appear on the SPO.
- (e) When using as payment for lodging, the following instructions will apply.
1. The following statement should be written in the description portion of the SPO: "Lodging covered by this invoice was for housing firefighters enroute to (enroute from-or-on, as the case may be) a going fire near (describe location.) No State quarters were available." If travel was to-or-from a *Staging Area* and move-up or cover assignment and not directly related to a specific fire, your statement is to be modified to show, "*Staging Area* and

FIRE CONTROL HANDBOOK

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
PURCHASE/CONTRACT/DELEGATION ORDER
7-40 (6-78) (IN LIEU FORM 87)

PLEASE TYPE OR PRINT

AGENCY BILLING CODE 113044	CONTRACT/SPR/DEL. NO. 	PAGE OF PAGE 10/10/1
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CALIF. DEPT. OF FORESTRY	MAIL INVOICE IN TRIPLICATE TO: CALIF. DEPT. OF FORESTRY	DATE MO DAY YR 11/11/80
1050 PARKVIEW	SAME	AGENCY ORDER NO.
REDDING, CA		VENDOR THIS NUMBER MUST BE SHOWN ON INVOICE

ENDOR MOTELS OF AMERICA	COMPLETE ONLY WHEN TO BE USED AS VENDOR'S INVOICE
ADDRESS 687 GREEN ST	I hereby certify that this is a true and just bill and payment has not been received.
FRESNO, CA ZIP	VENDOR'S INVOICE NO. 79865
ENDOR NUMBER S/B ETH	VENDOR'S SIGNATURE <i>Sally Smith</i> TITLE (Owner, Manager, Clerk, etc.) <i>Clerk</i>

NOTICE TO MERCHANT

1. SHOW OUR STATE CONTRACT NUMBER AND CONTRACT PURCHASE ORDER NUMBER ON YOUR INVOICE.
2. SHOW EXEMPT DISCOUNTS OFFERED ON YOUR INVOICE.
3. SUBMIT INVOICE IN TRIPLICATE. IF NOT ON PRINTED BILL, SEND THREE COPIES WITH INVOICE.

4. SUBMIT ORIGINAL RECEIPTED EXPENSE BILLS IF YOUR INVOICE INCLUDES PREPAID TRANSPORTATION CHARGES.
5. PACKING OR SHIPMENT CHARGES WILL NOT BE ALLOWED UNLESS STATED IN THIS ORDER.

DATE WANTED	SHIP VIA	F.O.B.	TERMS
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QTY	QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENSION
1	2	EA		ROOM RENTAL	21.00	42.00
2						
3				LOOKING COVERED BY THIS		
4				INVOICE WAS FOR HOUSING		
5				FIREFIGHTERS ENROUTE TO		
6				REDDING - J. JONES, FC,		
7				S. MATSON, FAE, B. JAMES,		
8				D. DOE, FF'S		
9						
10				"GOING FIRE"	ROOM TAX	2.52

PURCHASER AUTHORIZED (Signature, Title) M. Phillips Ranger II	PHONE NUMBER 22200	CERTIFICATION OF RECEIPT DATE RECEIVED 11-15-80 SIGNATURE <i>J. Jones</i> TITLE <i>Fire Captain</i>
DEPARTMENT AND FISCAL YEAR 3-1	INCIDENT NUMBER 23-1467	SUB-TOTAL 44.52
FUNCTION AND LOCATION AND LOC. 22200		SALES TAX
BUDGET ALLOTMENT & EXPEND. CLASSIFICATION 10		TOTAL 44.52
CLASSIFICATION NO.		LOCATION "LAVA FIRE"
PURCHASE REFERENCE NO.		C.D.F. #
SUBJECT		VEHICLE LICENSE NUMBER

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FIRE CONTROL HANDBOOK

Location" or "Move-up or Cover and Location" rather than "Going Fire."

2. The date, names, and civil service classification of personnel occupying the quarters must also be shown.
- (f) The rate paid for lodging is a maximum of \$29.00 per person, including taxes. Rates to \$35.00 with receipt and being in a Designated High Cost Area are designated by Zip Codes:
 - San Francisco - 94102, 94104, 94108,
94109, 94111, 94133
 - Los Angeles - 90012, 90013, 90014,
90015, 90017, 90021,
90071
 - San Diego - 92101

After arriving at a fire or staging area, no-one shall stay in a motel without prior authorization from the **Fire Boss or Officer-in-Charge** of the Staging Area.

FIRE CONTROL HANDBOOK

- (g) Contract items will be purchased in the same manner as noncontract items except that pricing and routing procedure differ according to the provisions of the particular contract. Purchase of noncontract items is acceptable only if the contract vendor cannot supply the need on a timely basis. Purchase of items to replace stock will be made from a contract vendor.

NOTE:

1. SPOs written for meals or lodging are to be turned in at the **Base Camp, Staging Area, or Ranger Unit Headquarters** for processing.
2. SPOs are not to be written after arrival at a fire without approval of the **Fire Boss** or his designated representative, or the **Officer-in-Charge** of the **Staging Area**.
3. SPOs for meals or lodging may be written enroute from one fire to another when

- circumstances so warrant. Such SPO's are to be turned in at *Base Camp* upon arrival.
4. SPO's written for meals or lodging when returning home are to be charged to the last fire or *Staging Area* and promptly mailed to that Ranger Unit Headquarters.
 5. All SPO's are to be processed by the Ranger Unit in which the fire has occurred. (In those instances when "move-up or cover crews" are involved, all SPO's are to be processed directly to the Ranger Unit in which the fire or fires occurred for coding/processing if the crew does not report to a *Base Camp* or *Staging Area* before returning home.)

- "GOING FIRE," "STAGING AREA," "MOVE-UP" or "COVER."
- Fire Name and Order Number or *Staging Area* Name and Order Number, or Move-up or Cover Location and Order Number.
- Ranger Unit and Region in which above activity occurred.

NOTE: All travel Expense Claims against the *Emergency Fund* are to be forwarded to and processed by the Ranger Unit in which the above activity occurred for financial coding and processing. Separate Travel Expense Claims are to be filled out for each fire or incident and for each employee. Do not mix normal travel with *Emergency Fund* travel.

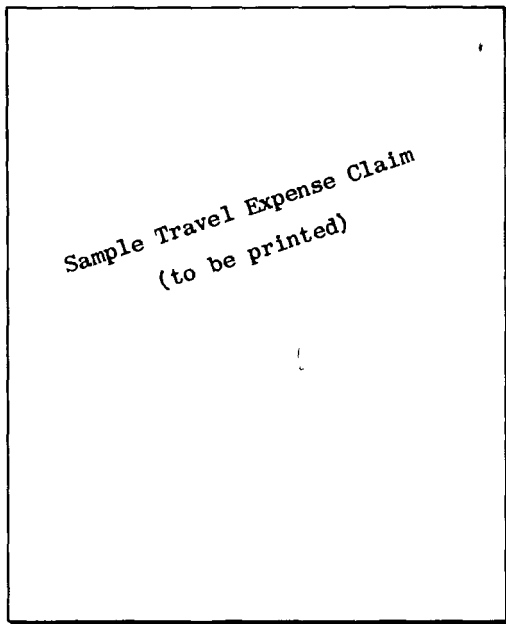
d. TRAVEL EXPENSE CLAIM (STD. FORM 262)

Travel subsistence allowance (per diem) is an authorized charge against the *Emergency Fund* for employees on travel status to-or-from going fires. Travel expense claims may be filed in accordance with Board of Control rules (refer Manual of Instructions Section 1500). Sub-Purchase Orders (SPO) *will not be used for payment of meals and lodging by those employees choosing to file a travel expense claim.*

(1) INSTRUCTIONS AND PREPARATION

The following items are to be included in the preparation of the Travel Expense Claim covering *Emergency Fund* expenditures for travel:

- (a) List the following information under "Remarks" or "Details" section of your travel expense claim (Std. Form 262).



- e. Form FC-42 " "TIME SHEET AND PAY VOUCHER, SHORT TERM-NON CIVIL SERVICE."

(1) PURPOSE

Form FC-42 is used to hire individuals for temporary employment on emergency incidents. The FC-42 process is a simplified hiring and timekeeping procedure, and allows field preparation of State pay checks for prompt payment of the individual hired.

The FC-42 is not used for hiring employees who will be paid for their work by another employer.

(2) FC-42 PREPARATION.

FC-42's are normally prepared and maintained by the *Timekeeper*.

(a) SPECIAL INSTRUCTIONS

1. Prior to employment, each person must complete Form W-4, Employee's Withholding Allowance Certificate. Form W-4 must be forwarded to Paying Officer for check preparation.
2. Do not combine calendar or fiscal years on one FC-42 form.
3. Within three working days after the end of each calendar or fiscal year, all outstanding FC-42's must be completed and forwarded to the Paying Officer for check preparation.
4. Except in special instances (end of calendar or fiscal year, employment of other

- than regular volunteers, etc.), FC-42's should be forwarded to the Paying Officer once each 30 days.
5. All entries on Form FC-42 (except signature) must be legible and printed so as to be readable on all copies. Press hard with a ball point pen.

(b) HIRING PROCEDURE

1. Enter NAME of individual being hired. Use full name, including middle initial, as on individual's Social Security Card. Do not use "nick" names.
2. Enter individual's SOCIAL SECURITY NUMBER.
3. Enter MONTH and YEAR. Do not use a number for the month.
4. Enter complete HOME ADDRESS of the individual including ZIP Code.
5. If the individual is regularly employed by another agency or company, enter the name of that regular employer under ORGANIZATION REPRESENTED.
6. Show Fiscal Function Code of Ranger Unit preparing check.
7. Under OATH OF ALLEGIANCE, enter the individual's name (as it is shown in Item 1. above) on the line following "I".
8. Ask the INDIVIDUAL TO READ THE OATH to himself. If,

after reading the oath, the individual has no reservations about signing the oath, ask him to sign his full name (as shown in Item 1 above) on the "signature of employee" line.

9. The reading and signing of the OATH must be WITNESSED by a State employee who is authorized to give the Oath. This may be the *Timekeeper* or another employee. When the authorized State employee dates and signs the Oath, the hiring procedure has been completed.
10. Remove the perforated IDENTIFICATION SLIP from the right edge of the original of the FC-42 and give it to the employee. Tell the employee he must show the identification slip to the *Timekeeper* each time he goes "on" or "off duty."

(c) CLASSIFICATION AND RATE OF PAY

1. Using the general duty descriptions in the ANNUAL WAGE RATE SCHEDULE, determine the proper position classification in which the employee is being hired to work on this particular day. Wage rates of regular employment or previous emergency CDF employment have no bearing on this determination.
2. Enter the position CLASSIFICATION, as determined

- above, on the FC-42. Enter for each date worked, or use ditto mark if no change.
3. Enter the corresponding RATE OF PAY in Column D. Enter for each date worked, or use ditto mark if no change.

(d) DAILY TIMEKEEPING PROCEDURE.

A line containing all timekeeping data will be completed as follows for each day and/or incident on which the employee works.

1. Enter the DATE the employee begins work.
2. Enter time employee goes ON DUTY. Round off to nearest whole hour. Use 24 hour time recording system.
Employee will be paid for TRAVEL TIME to the incident if he was dispatched from his home, place of employment, or another incident. Daily commute time "to" and "from" the incident is not payable.
3. Enter time employee goes OFF DUTY. If work shift lasts past midnight enter "24" in "off duty" column and start a new date with a "0" on duty time.
Employees will be paid for TRAVEL TIME back to their home or place of employment if travel time to the incident was authorized for payment. Travel to a new incident will be charged to the new incident.

FIRE CONTROL HANDBOOK

4. Subtract "on duty time" from "off duty time" and enter HOURS WORKED in Column C.
5. Multiply hours worked times rate of pay and enter result in AMOUNT DUE column.
6. Enter INCIDENT NAME for each work period, or use ditto mark if no change.
7. Enter ORDER NUMBER for each work period, or use ditto mark if no change.
8. If the incident is the responsibility of another agency (such as USFS, BLM, Kern County, City of San Diego, etc.), enter the name of the responsible agency. If the incident is the responsibility of the CDF under terms of a contract with local government ("Schedule A"), enter the name of that local government and the contract such as Orange County, Monterey County, Fresno Mid Valley, etc.
9. After each line of timekeeping data is completed and checked for accuracy, it will be signed by the *Timekeeper*. If more than one line of data is completed by the same *Timekeeper*, he may sign the first line and initial succeeding lines.

(e) COMPLETION AND PROCESSING

1. After the final line to be used on the FC-42 has been

FIRE CONTROL HANDBOOK

- completed, the *Timekeeper* will add the "amount due" column and enter the total opposite "GROSS PAY." (Tax and pay check data will be entered by Paying Officer.)
2. The FC-42 is now ready for processing by the counter-signer who will, when satisfied as to the completeness and accuracy of the *Timekeeper's* entries, sign and date the form. The same person cannot sign as both *Timekeeper* and Countersigner.
 3. The FC-42 is now ready to be sent to a Paying Officer (see Manual Section 1541) so that a paycheck can be prepared. The ORIGINAL, DUPLICATE AND TRIPLICATE copies of the completed FC-42 are sent to the Paying Officer. The QUADRUPLICATE copy remains in the booklet as the Ranger Unit record. A completed Form W-4 must be sent to the Paying Officer with the FC-42, unless the employee has a W-4 on file at the Paying Officer's location.

RENTAL RATES

FIRE CONTROL HANDBOOK

(2) ANNUAL WAGE RATE SCHEDULE

Annual Wage Rate Schedule Effective July 1, 1981

POSITION	RATE PER HOUR
FIREFIGHTER, E.F.F.	\$ 4.91
- Unskilled or Semiskilled Firefighters as Individuals or in Groups	
- Casual Laborers	
FIRE CONTROL ASSISTANT, F.C.A., E.F.F.	7.17
- Trained FCA from an Organized Fire Department	
- Tool Sharpener	
- Tool Tender	
- Air Tanker Base Crewperson	
FIRE APPARATUS ENGINEER, E.F.F.	8.48
- Operates Vehicles to 36,000 lbs GVW	
- Supervisor of Crew to 5 persons	
- Timekeeper	
- Mechanic's Helper	
- Radio Operator	
FIRE CAPTAIN, E.F.F.	9.28
- Supervisor of Crew of 5-15 Persons	
- Falling Boss	
- Sector Boss	
STATE FOREST RANGER I, E.F.F.	11.16
- Supervisor of 2 or More Fire Captains	
- Dozer Boss	
- Division Boss	
HEAVY FIRE EQUIPMENT OPERATOR, E.F.F.	9.72
- Operates Vehicles over 36,000 lbs. GVW	
- Operates Dozer	
FORESTRY COOK II, E.F.F.	6.65
- Base Camp Food Planning and Preparation	
FOOD SERVICE WORKER I, E.F.F.	5.54
- Prepares Lunches or Assists in Preparation of Meals	

FIRE CONTROL HANDBOOK

f. SUPPRESSION COST ESTIMATION

Estimates of suppression cost on a daily basis for large fires are needed for several purposes including:

- (1) *Finance Chief* responsibility to provide *Fire Boss* with estimated suppression cost;
- (2) Public information; and
- (3) For use at department level for budget estimation, and reporting to other state agencies.

To meet these needs the *Finance Chief* must be able to estimate suppression cost on a daily and to-date total basis. The method used to estimate cost is to multiply the number of units assigned to the fire by the following average daily or hourly rates:

<u>Suppression Unit</u>	<u>Average Cost</u>
Airco (plane and observer).....	\$ 100 per hour
Airtanker (includes retardant at 2 drops per hour):	
S-2.....	\$1200 per hour
DC-4, C119, B-17, PBV.....	\$2700 per hour
DC-6.....	\$3800 per hour
DC-7.....	\$3900 per hour
Helicopter (with pilot only).....	\$ 350 per hour
Helitack (includes CDF crew).....	\$ 400 per hour
Engine (with crew, any agency).....	\$ 500 per day
Bulldozer (with operator, CDF or rental).....	\$ 650 per day
Handcrew.....	\$ 800 per day
Special equipment.....	Estimate based on rental rate
Overhead and misc. personnel.....	\$ 200 per day

FIRE CONTROL HANDBOOK

All rates are based on a major fire operation. They include equipment, personnel, and fire camp subsistence and support costs.

These rates are estimates of average cost based on fire cost reimbursement rates.

(Handbook now goes to Page 199, 5606 NON-CDF PERSONNEL
AND EQUIPMENT) 79r

NON-COE PERSONNEL
AND EQUIPMENT

FIRE CONTROL HANDBOOK

5605 NON-CDF PERSONNEL AND EQUIPMENT

CHAPTER OUTLINE

ITEM	PAGE
5605 NON-CDF PERSONNEL AND EQUIPMENT.....	201
.1 GENERAL.....	201
.2 HIRING GUIDES.....	201
a. Personnel.....	201
(2) Supervision and Direction.....	202
b. Ground Equipment.....	202
(1) Hiring Guides - General.....	203
(2) Hiring Guides - Dozers.....	204
(3) Operator's Responsibility.....	205
(4) Rental Rates.....	205
(5) Service, Maintenance, and Repair.....	205
c. Aircraft.....	206
.3 ORGANIZED FIRE DEPARTMENTS.....	206
a. Procedure for use.....	207
.4 INSTITUTIONAL EMERGENCY FIREFIGHTERS (EFF).....	208
a. State Institutions.....	208
(1) Procedure for use.....	208
b. Conservation Centers.....	209
(1) Procedure for use.....	210
c. Rules and Regulations.....	210
.5 VOLUNTEERS AND INDUSTRY CREWS.....	211
a. Volunteers.....	212
b. Industry Crews.....	212
c. Employment Procedure.....	212
d. Examples of use.....	213
.6 FEDERAL MILITARY FORCES.....	214
a. Procedure for use.....	215
b. Briefing.....	215
.7 STATE MILITARY FORCES (NATIONAL GUARD).....	215
a. Procedure for use.....	216
b. Wage rate schedule.....	218c
c. Employment procedure.....	218d
d. Briefing.....	218d

FIRE CONTROL HANDBOOK

e.	Large Aircraft.....	218e
	(1) Loading Instructions - Personnel.....	220
	(2) Loading Instructions - Automotive Equipment.....	222
	(3) Airlift Coordinator and Airlift Liaison Officer.....	224
	(4) Instructions for Airlift Transportation Form.....	227
f.	Helicopters.....	227
	(1) Military Helicopter Liaison Officer.....	229
.8	OFFICE OF EMERGENCY SERVICES (OES).....	230
	a. Procedure for use.....	231
	b. Liaison Officer (CDF) Responsibilities.....	232
	c. Supervision.....	232

(Handbook then goes to Page 237, 5606 Demobilization)

5605 NON-CDF PERSONNEL AND EQUIPMENT

.1 GENERAL

Fighting large fires will usually require hiring non-CDF personnel and equipment and requesting assistance from various governmental and other organizations to supplement the CDF's regular fire control forces.

Although wide latitude is granted field personnel to acquire these resources, established rules and procedures must be followed.

This chapter presents rules and procedures for using hired personnel and equipment, and EFF, OES, military, National Guard, and organized fire departments on CDF fires.

.2 HIRING GUIDES

a. PERSONNEL (Sec. 5710, Manual of Instructions)

The following applies to employment for fire suppression on a temporary or emergency basis:

- (1) No one under 16 years of age, or 16 to 21 years of age whose parent or guardian objects to fire control work, shall be hired.
- (2) No retired State employee can be paid under State law, except under certain special conditions.
- (3) Agricultural workers should not be hired during harvesting season except in extreme emergency.
- (4) No one convicted of arson or sex offenses shall knowingly be hired.
- (5) No person should be hired to protect his own property or property bearing his interests.
- (6) Volunteers requested by or receiving specific instructions from CDF officials may be hired.
- (7) Volunteers must be properly clothed, physically qualified, and properly trained and experienced.

(1) EMPLOYMENT PROCEDURE

A person who is hired as Paid Pick-Up Labor should sign an Emergency Fire Time Record, FC-42, at the time of employment or as soon after as is reasonable.

(2) SUPERVISION AND DIRECTION

- (a) Paid Pick-Up Laborers hired by the CDF must be supervised commensurate with their position and qualifications the same as regular CDF employees.
- (b) In order to operate CDF equipment, they must possess the same type license as required for regular CDF employees. Normally, they should be certified by the local Ranger-In-Charge as being qualified to operate the equipment.
- (c) In case of injury, the same reports and treatment are required as for regular CDF employees.

b. GROUND EQUIPMENT (Sec. 5720, Manual of Instructions)

Equipment may be rented from any owner (except one protecting his own interests) who is willing to rent. There is no practical provision for forcing an owner to rent equipment for emergency use.

Public entities such as cities, counties, and State agencies may be willing to make their equipment available to CDF in emergencies. In general, the use of publicly-owned equipment is subject to the same conditions as private equipment; in addition, advance approval of the public official responsible for the equipment must be secured (see Manual of Instructions, Part 5400).

Hiring privately-owned equipment to perform work for the CDF in emergencies is permitted under Government Code Section 14784 authorizing exception from contracting. Rental of "non-State" equipment for fire control use

will be reported to General Services on a post-use basis. The reporting process will be handled directly through the Director's Mobile Equipment Section in conjunction with the Departmental Accounting office and will not require field input.

The problems surrounding the hiring of motorized equipment on a large fire are many and varied, and will usually require the full-time attention of competent individuals. It is therefore quite important that the positions of *General Transportation Manager* or *Dozer Manager* be filled (as appropriate) whenever large numbers of equipment are to be hired.

(1) HIRING GUIDES - GENERAL

The following items should be considered, and appropriate actions taken whenever equipment is hired regardless of numbers of pieces:

- (a) There must be a genuine need for the equipment.
- (b) An inspection of each piece of equipment should be made by a qualified CDF employee before the unit is hired (use Form FC-100).
- (c) Only equipment that is judged by a qualified CDF employee to be mechanically sound and designed or equipped to do the assigned job should be hired.
- (d) Written notes should be made on minor damages noted during inspections.
- (e) Regular qualified operators and their relief should be obtained with each piece of rented equipment.
- (f) It is often desirable to assign and paint numbers on equipment, (particularly dozers) for ease of identification at a later time.

- (g) Conditions of hire statements (Form FC 100) should be completed as soon as possible, preferably before the equipment goes to work.
- (h) Each piece of hired equipment should be inspected by a qualified CDF employee before being released from the fire.
- (i) The State will consider making payment for repairs of equipment actually damaged because of the unusual rigors of fire work after a qualified CDF employee has evaluated the extent and cause of the damage.
- (j) The State will not consider making payment for repairs which are deemed to be due to normal wear and tear or which are due to negligent or inefficient operation on the part of the owner or operator.

(2) HIRING GUIDES - DOZERS

In addition to the preceding guides, it is the Director's policy to hire only dozers that meet the following conditions:

- (a) Dozers equipped with canopies.
- (b) Dozers equipped with seat belts as currently required by the Division of Industrial Safety for late model machines.
- (c) Operators are equipped with hard hats and gloves, and operate with shirt sleeves rolled down and buttoned at the wrist.
- (d) When on the fire line, any hired dozer should be accompanied by a competent radio-equipped swamper, or should be assigned to work in conjunction with a CDF dozer.

The only exception to this policy will be when the immediate emergency for the protection of life or property requires that improperly equipped units be hired, in which case the unit will be released as soon as the pressing emergency has passed.

Only canopy-equipped bulldozers should be listed and signed up in the Ranger Unit's Emergency Resource Directory.

(3) OPERATOR'S RESPONSIBILITY

- (a) It shall be the operator's responsibility to recognize the capabilities and limits of the equipment he is operating. Assignments beyond the mechanical capability of the equipment to perform should be refused by the operator.
- (b) Those assignments beyond the operator's ability to perform should be refused by the operator.

(4) RENTAL RATES

Equipment rental rates will be determined from the Equipment Rental Rate Schedules in Chapter 4.

(5) SERVICE, MAINTENANCE, AND REPAIR

It is customary that the CDF provide fuel and lubricants for all equipment working on a CDF fire. Rental rates indicate an additional payment to an owner who supplies the materials and services included under the heading "Operation" in the rental rate.

If rented equipment is damaged and it is determined that the State is responsible for payment of repair costs, copies of Form FC-100 describing the damages must be forwarded to the Director's Office with the request for payment. These documents should be supported by a narrative statement explaining the

circumstances and establishing the State's responsibility for payment.

c. AIRCRAFT

Emergency hiring of aircraft is authorized, as necessary, to meet emergency fire situations in an effective manner. This privilege must be administered judiciously to avoid unnecessary expenditure of public funds:

- (1) The contractor and any agent or employee of the contractor in the performance of his services shall act in a capacity independent of the State of California.
- (2) Aircraft will be hired for the purposes of fire detection, fire reconnaissance, fire suppression, transportation of personnel, and other clearly justifiable fire activities, as necessary.
- (3) The sole payment to the contractor for services rendered shall be the sum established as the rental payment.
- (4) Rates paid by the State shall include all compensation for hiring the aircraft and pilot. Other obligations connected with using the aircraft are solely the contractors.

Note;--"After the *Initial Attack* period" regular CDF operational contract aircraft on a going fire are charged against the *Fire Emergency Fund*. (See 5604.)

.3 ORGANIZED FIRE DEPARTMENTS (Sec. 5730, Manual of Instructions)

The capabilities of individual fire districts and departments to lend assistance to the CDF in controlling wildland fires will vary. The types of equipment as well as the types of organization will largely determine the degree of assistance that can be rendered.

When requesting or using Organized Fire

Departments, the following items should be considered:

a. PROCEDURE FOR USE

- (1) Municipal fire equipment must be used only in cases of serious fire threat and where municipal type equipment will be of definite value.
- (2) When ordering equipment, the type desired should be specified (engines to pump while moving, nurse tankers, volume or pressure pumps, etc.).
- (3) A minimum of three fire fighters per engine should be requested. Arrangements should be made for relief at the time of ordering.
- (4) A common point of assembly should be specified. A qualified CDF employee should be at this location to brief the incoming personnel and organize them for use. It is important that those personnel fully comprehend the objectives and operating problems they might encounter.
- (5) Units should be grouped as much as possible by individual agency. An officer of that agency should be used to coordinate their actions according to directions of CDF personnel.
- (6) Units with a common radio frequency should be assigned to work together.
- (7) Whenever possible, radios on the same frequencies as the units working on the fire should be located at fire headquarters with operators.
- (8) It is desirable to assign a CDF supervisor (*Liaison*), with radio equipped transportation, to work with groups of five units or more.
- (9) An OES communication unit should be requested when many different radio frequencies are in use.

FIRE CONTROL HANDBOOK

- (10) A segregated area should be established in or near *Base Camp* for handling personnel and equipment.

.4 INSTITUTIONAL EMERGENCY FIREFIGHTERS (Sec. 5740, Manual of Instructions)

These emergency firefighters (EFF) may be located at maximum security correctional institutions or at Conservation Centers.

a. STATE INSTITUTIONS

The State Department of Corrections annually makes a quota of inmates available for fire control work at each of the men's correctional institution facilities in the State. With the exception of kitchen crews only those inmates who have received a minimum of 16 hours training in fire control techniques will be used.

(1) PROCEDURE FOR USE

When EFF are ordered, the following items should be considered:

- (a) Groups of 16 to 100 men, without overhead or tools, are available, depending upon the respective quota of each correctional facility.
- (b) Camp crew teams for food preparation are available. Plans should be made for two cooks and four helpers as a team for each 12-hour shift.
- (c) To achieve the greatest production, one CDF supervisor for each 10 men on the fire line will be needed.
- (d) A qualified CDF employee will be sent by the Region *Emergency Command Center (ECC)*.

FIRE CONTROL HANDBOOK

- The employee will rendezvous with EFF crews at a convenient enroute location and will escort them to the fire.
- (e) Arrangements will be made, if necessary, by ECC for commercial bus or air transportation to and from the fire.
 - (f) Tools, equipment, and transportation to and from the fire line must be furnished from *Base Camp*.
 - (g) Feeding and care of EFF enroute, on, and during return from any fire are responsibilities of CDF personnel. Hot meals before release are desirable but not mandatory.
 - (h) Institutions may be requested to prepare lunches for use by inmates enroute to the fire.
 - (i) Under no circumstances should EFF crews be housed at any active Conservation Camp barracks.
 - (j) The Sacramento ECC must be advised whenever EFF crews are assigned to a fire in another location from that first designated.
 - (k) EFF fire time will be recorded on Form FC-77, Institution Fire Payroll Report.
 - (l) Wage computation for EFF crews shall be made at the base institution.

b. CONSERVATION CENTERS

Conservation Centers have been established within the State. They process and train EFF inmates prior to their assignment to Conservation Camps. A Forestry Training Program is in operation at each center. Those inmates assigned to this program are given rigorous physical conditioning by CDC instructors and intensive

FIRE CONTROL HANDBOOK

instruction in fire control by CDF personnel.

(1) PROCEDURE FOR USE

When EFF crews are obtained from the Conservation Centers, the following items should be considered:

- (a) Number of inmates available from the Forestry Training Program at each Conservation Center will be from 60 to 100 men.
- (b) Usually one qualified CDF employee will be available to accompany each of the first four crews (15 men each) from the Forestry Training Program.
- (c) After all of the inmates assigned to the Forest Training Program have been dispatched, other EFF inmates with at least 16 hours of fire control training can be made available.

c.. RULES AND REGULATIONS

Certain rules and regulations which also apply to Conservation Camp Crews should be borne in mind by all CDF personnel who are responsible for supervising EFF inmate crews:

- (1) Anyone who is on parole or has been convicted of a felony must not accept (or be given) an assignment to supervise an inmate crew.
- (2) Assisting an inmate to escape is a felony.
- (3) Letters may not be mailed or messages carried for inmates.
- (4) Firearms, ammunition, deadly weapons, explosives, narcotics, or alcoholic beverages are not to be brought into an area occupied by inmates.
- (5) Crews are not to be permitted to mingle with other inmates, youth

FIRE CONTROL HANDBOOK

- wards, or with free people, except as required during their mission.
- (6) Crews are assigned hard hats for identification purposes, and they should wear them when on the fire line or in *Base Camp*.
 - (7) Inmates must not be allowed to go into buildings nor mingle in groups around buildings without proper supervision.
 - (8) Any abnormal occurrence (fight, injury, escape, etc.) must be reported immediately to CDC personnel.
 - (9) A crew must not be turned over to another CDF supervisor unless arrangements to do so have been made through proper authorities.
 - (10) An inmate crew must never be left without proper supervision.
 - (11) Complete crews will be turned back to CDC officers at the end of the work shift. This is usually done at the *Base Camp's* rest area.
 - (12) Inmates must not be taken out of California, except when necessary to pass through portions of an adjoining State to reach a destination in California. When traveling in an adjoining State, no stops will be made for rests, purchases, etc.

NOTE: See Sec. 5740, Manual of Instructions, for pay procedure

.5 VOLUNTEER AND INDUSTRY CREWS (Sec. 5750, Manual of Instructions)

People who work or live in the area where a fire is burning can often be of valuable assistance. Where large numbers of industry and local people are involved in fire control actions, a qualified industry or local representative should be used as a *Liaison*.

FIRE CONTROL HANDBOOK

a. VOLUNTEERS

Availability and usefulness of volunteer crews varies greatly throughout the state. Therefore, their use can best be left to the judgment of the local Ranger. Well-trained, organized volunteer crews can be of vital importance. CDF employees should take advantage of every opportunity to use these crews and their leaders. Plans should be made for calling, transporting, working and caring for them.

b. INDUSTRY CREWS

The most useful industry crews are those whose potential use was planned before the fire. Generally this planning would involve a CDF employee contacting each company's management to determine the number, availability, and experience of fire fighting personnel and their leaders. Prior to calling all or part of an industrial group, consideration must be given to:

- (1) Advantages to the suppression effort.
- (2) Disadvantages to the industry or private endeavor.

A fire manager must seriously weigh the gravity of an emergency situation and the responsibility involved in managing a crew of "outsiders" against the impact on the industry and the community. To take all of a sawmill crew, for example, might involve hiring personnel who, because of age, health, clothing and other factors, cannot or should not be hired. To be selective and take only a portion of a crew might leave the industry in a critically non-productive state.

These potential problems should be discussed thoroughly with each company's management before each fire season.

c. EMPLOYMENT PROCEDURE

All personnel employed as "Volunteers" or called as an "Industry Crew" must be picked up on Fire Time Slips, Form FC-42.

d. EXAMPLES OF USE

Examples of how industry and local workers can be used to advantage are as follows:

- (1) For scouting or as a source of information on areas surrounding the fire. Detailed knowledge of terrain,¹ access routes, fuel types, possible control lines, etc., can be invaluable to the Fire Boss in developing his strategy. Local people can also guide crews to their destinations in unfamiliar country.
- (2) To perform the specialized job of snag or timber falling. Highly qualified fallers who can supply their own saws and service are usually available in timber areas. Two or three person teams for each saw are desirable for safety reasons if they are obtainable. It is also advisable for safety reasons to use these people on the day shift.
- (3) As operators on hired dozers and water tankers. It is always best to hire dozers and water tankers with operators (two operators with each unit to provide relief) whenever possible. The operators who are accustomed to operating and servicing specific machines will provide the best overall performance. When available, a maintenance vehicle should be requested so that operators may do their own servicing on dozers.
- (4) To act as Liaison for industry and local personnel or equipment. When a company provides large numbers of personnel or equipment, a representative of that company's personnel or equipment as directed by CDF personnel.

FIRE CONTROL HANDBOOK

If a number of companies are involved, one industry representative may be used as an overall *Liaison*.

- (5) To help in determining damage to timber stands. Current information on damage is often required while fires are still burning out of control. Cruise sheets are often available from the company (or companies) involved. Or, local persons may have a personal knowledge of the approximate volume of timber on the area.
- (6) To take initial action on fires. Prearranged agreements can be made with local companies to respond to fires within designated areas. These areas will usually involve their own lands but may also include adjacent ownership. (See Operating Area Fires policy.)
- (7) To provide emergency communications. "Ham" operators can be of assistance during periods of extreme fire emergency to establish point-to-point radio contracts.

.6 FEDERAL MILITARY FORCES (Sec 5760, Manual of Instructions)

Agreements can be made with local military installations for local use of military personnel, equipment, and facilities. This cooperation should be encouraged and the Ranger Unit Emergency Resource Directory should include locally available military forces.

Beyond the local level, however, military forces should be considered only in cases of dire need and after all other sources of assistance have been exhausted. In many cases air and ground transportation will be the most valuable type of assistance which can be provided by military forces.

There is no provision for reimbursing the federal government for use of federal military forces.

a. PROCEDURE FOR USE

- (1) Requests for military forces should be made as far in advance of planned use as practical—at least 12 hours is advisable.
- (2) CDF personnel familiar with the area should meet incoming forces at a designated point along a main travel route and guide them to the fire.
- (3) One non-commissioned officer for each 15 men and a *Liaison Officer* should be requested.
- (4) Military forces are self-sufficient (except for fire tools) and will supply all of their own needs unless an agreement is made to do otherwise. In the latter case, a complete understanding should be reached as to what materials or services that CDF is expected to furnish.

b. BRIEFING

Proper briefing of military personnel is important. Before deploying personnel and equipment, a few minutes should be devoted in the following manner:

- (1) Explain objectives and methods of operation.
- (2) Indicate assigned areas on an appropriate map.
- (3) Stress safety.

.7 STATE MILITARY FORCES (NATIONAL GUARD) (Sec. 5760, Manual of Instructions)

In accordance with law and formal agreement, the CDF may request assistance from the Military Department, State of California during extreme fire

emergencies. The State Military Department is also referred to as the National Guard. Ground support vehicles, large aircraft and helicopters are available from the National Guard.

a. PROCEDURE FOR USE

The following procedures apply to the use of National Guard:

- (1) The CDF will provide overhead, fire tools, equipment, and subsistence.
- (2) At least one *Guard Officer* or *Warrant Officer* will be assigned as *Military Field Commander (MFC)* to a fire on which National Guard vehicles and personnel are used.
- (3) National Guard vehicles and personnel must check in with the CDF *Timekeeper* upon arrival at the *Base Camp* and check out at time of departure.
- (4) Two drivers will accompany each vehicle dispatched to a fire.
- (5) Each driver or member of air crew will be paid for time on his duty shift only, regardless of whether or not his assigned vehicle or aircraft is in actual operation.
- (6) For each multiple of five trucks dispatched to a fire, there will be one mechanic and a maintenance truck. (NOTE: This will be standard operating procedure for the first five vehicles. If additional vehicles are requested but no additional mechanics are required, this should be clearly stated at the time of the request.)
- (7) Maintenance mechanics who accompany National Guard vehicles to a fire will be authorized to sign the release for the trucks.
- (8) A qualified CDF employee shall conduct an inspection of

FIRE CONTROL HANDBOOK

National Guard vehicles upon their arrival at the fire to determine if there are any visible damages or deficiencies. He shall make notes of any such defects or deficiencies.

- (9) A qualified CDF employee shall also accompany the Guard mechanic who inspects the National Guard vehicles at the time they are released in order to determine whether any damages have occurred while the vehicles were on the fire. He shall sign the Department of the Army Vehicle Inspection Form, thus acknowledging any losses or damages that occurred while the Guard vehicle was in use on a CDF fire. One copy of this report shall be transmitted to the Ranger Unit Office to be maintained as part of the fire report.

(NOTE: CDF is not liable for damages incurred as the result of negligence or misuse by the National Guard.)

- (10) Equipment that has actually been damaged while engaged in fire suppression work will be inspected by a qualified CDF employee to determine the precise damage caused because of that work. The State will then promptly make arrangements for the repair of such damage.
- (11) Minor repairs should be handled at the local level. However, extensive damages to a Guard vehicle involving major repair work, the replacement of expensive parts and/or the procurement of special items of equipment

FIRE CONTROL HANDBOOK

not normally available at commercial shops, shall be promptly reported to the *Emergency Command Center* in Sacramento.

- (12) The CDF shall be responsible for providing Guard vehicles, aircraft and equipment with fuel, oil and normal servicing during the period of the fire.
- (13) For each ten vehicles sent to a fire, there will be a minimum of two Guard officers present. This arrangement will provide *Liaison* and supervision on a 24-hour basis. Requests for additional National Guard equipment and personnel should clearly state whether or not officers are required.
- (14) When National Guard aircraft are dispatched to a fire, Guard ground personnel necessary to support the aircraft will be assigned and dispatched with them.
- (15) In multiple fire situations where National Guard equipment and personnel are being used on an existing fire and are proposed for use on another fire, a new authority for dispatching or relocating these forces is required. However, in the event that crews and equipment must be transferred in great haste from one fire to another, the necessary authority may be obtained after the fact. When any such moves are ordered by responsible field officers, the Sacramento *Emergency Command Center* must be notified at once.

FIRE CONTROL HANDBOOK

- (16) No limit on the length of the tour of duty of National Guard forces is specified, however, every reasonable effort should be made to release them as soon as it is practical to do so. Guard personnel will be assigned shifts of 12 hours duration unless otherwise specified.
- (17) All Guard personnel will be paid from the time they report at their home station; for actual hours engaged in fire control activities; from the time of departure from the scene of the fire until relieved from duty upon return to home station; and for clean up and maintenance of military equipment after return to home station (maximum of four (4) man hours). Portal-to-portal pay will not be paid.
- (18) CDF shall reimburse Military personnel for out-of-pocket expenses for necessary meals consumed or lodgings enroute to and from a fire. Payment for out-of-pocket expenses should be made from Petty Cash Fund or by submitting Form 262, Travel Expense Claim, with receipts attached.
- (19) Personnel of the Guard will be paid on hourly rate in accordance with the following wage rate schedule:

FIRE CONTROL HANDBOOK

b. NATIONAL GUARD WAGE RATE SCHEDULE 7-1-81

POSITION	HOURLY RATE
Military Field Commander	\$14.10
Liaison Officer (Fire Site)	
Assistant Military Field Commander	11.16
Team Chief, Microwave Communications	
Liaison Officer (Sacto Fire Coordination Center)	
Maintenance Officer	9.72
Section Leader	
Finance Officer	
Site Supervisor, Microwave Communications	
Team Leader/NCO (Vehicle, Mess, Shower, Laundry, Medical, Mechanic)	9.28
Driver, Heavy Vehicle (over 5-ton)	
Heavy Equipment Operator (Wrecker, Bulldozer, etc.)	
Electronics Technician, Microwave Communications	
Driver, Medium Vehicle (5-ton and under except Jeep)	8.48
Cook	
Shower Operator	
Laundry Operator	
Medic	
Switchboard Operator, Microwave Communications	
Vehicle Mechanic	
Administrative Assistant	7.17
Driver, 4 by 4 Jeep	
Duty Officer, Home Station & Military Department EOC	
Cook--Helper	
Radio Operator	
Mechanic Helper	
<u>Aircraft:</u> Pilot	12.84
Crewman	10.90
Mechanic	9.95

FIRE CONTROL HANDBOOK

c. EMPLOYMENT PROCEDURE

All National Guard forces should be paid by use of Emergency Fire Slip, FC-42.

d. BRIEFING

Proper briefing of National Guard personnel is important. Before deploying personnel and equipment, a few minutes should be devoted in the following manner:

- (1) Explain objectives and methods of operation.
- (2) Indicate assigned areas on an appropriate map.
- (3) Stress safety.

FIRE CONTROL HANDBOOK

e. LARGE AIRCRAFT

Large aircraft can be used to airlift personnel and equipment to virtually any location in the State. Aircraft used in these airlift operations are usually commercial charters, Forest Service contract aircraft, or National Guard C-130 cargo planes.

The C-130 is a four engine turbine aircraft with a maximum gross take-off weight of 123,000 lbs. The cargo capacity is 35,000 lbs., excluding fuel. The cargo compartment is 9 ft. high, 10 ft. wide and 40 ft. long. It normally carries 80 crew personnel with equipment. The C-130 may be used to quickly move personnel and equipment including handcrews, overhead, sedans, pickups, engines, etc. Cargo space limitation does not allow for the transportation of Conservation Camp buses.

The CDF has found that predetermined plane loads, "Modules", can speed up the mobilization and transportation of these resources. The CDF has developed two Handcrew Modules:

FIRE CONTROL HANDBOOK

- . Module A Handcrew Task Force
- . Module B Handcrew Task Force

and two engine modules:

- . Module C Engine Task Force
- . Module D Engine Task Force

The four Modules are explained below:

"Module A" Handcrew Task Force

A "Module A" Handcrew Task Force consists of four handcrews and a *Handcrew Coordinator*. No vehicles will be involved. The total number of personnel will not exceed 75, including CDF and custody agency overhead. Crews may have to be trimmed. The Requesting Region will request crews with or without hand tools. The requesting Region will provide transportation for all personnel. Custody personnel will make their own vehicle transportation arrangements internally through their own agency. If they have nothing available and will need a vehicle upon arrival, CDF will provide one, usually through a rental agency. The *Handcrew Coordinator* will notify the *Airlift Liaison Officer* of this need so that the requesting Region can include transportation arrangements for the custody agency in their planning. One large commercial aircraft; or one large USFS contract aircraft; or one C-130 will be required.

"Module B" Handcrew Task Force

A "Module B" Handcrew Task Force consists of four handcrews, a *Handcrew Coordinator* and not more than two vehicles. The vehicles will normally be sedans, pickups or carryalls. The total number of personnel may not exceed 75, including CDF and custody agency overhead. Crews may have to be trimmed. Hand tools, Handi-Talkies, and other required gear will be carried in the two vehicles involved, if requested with the crews. If the CDF cannot airlift the custody agency's vehicle, the custody agency will make its own vehicle trans-

portation arrangements internally through their own agency. If they have nothing available and will need a vehicle upon arrival, the CDF will provide one, usually through a rental agency. The *Handcrew Coordinator* will notify the *Airlift Liaison Officer* of this need so that the receiving Region can include transportation arrangements for the custody agency in their planning. Two C-130's will be required.

"Module C" Engine Task Force

A "Module C" Engine Task Force consists of 5 heavy engines, plus personnel and a *Task Force Leader* with vehicle, for a total of six vehicles. The engines may consist of any combination of Models #1, 5, 8, 9, or 10. However, not more than 4 Model #9s should be included since the *Task Force Leader's* pickup or sedan will not fit with a #9 in the aircraft. Five C-130s will be required.

"Module D" Engine Task Force

A "Module D" Engine Task Force consists of 5 engines (3 heavies and 2 mediums) plus personnel and a *Task Force Leader* with vehicle, for a total of 6 vehicles. The heavy engines may consist of any combination of Models #1, 5, and 10. The medium engine will be a Model #4. This will require three C-130s. A heavy engine would be loaded in each aircraft with medium engine or *Task Force Leader's* vehicle.

(1) LOADING INSTRUCTIONS - PERSONNEL

Briefing of CDF personnel to be airlifted will be conducted by the *Guard Loadmaster*. He will also direct loading of the aircraft and will be in direct command of CDF personnel while in flight. The following are Guard instructions pertaining to the transportation of CDF personnel:

FIRE CONTROL HANDBOOK

- (a) Flammables and explosives will not be carried in any baggage. Cotton filled cigarette lighters may be carried by passengers on their person. Other type lighters, such as gas filled or lighters having plastic visible fluid containers, will be emptied before the passenger boards the aircraft.
- (b) Flash bulbs may be carried in hand baggage only. Flash bulbs will not be carried in stowed baggage.
- (c) Ammunition will be stored under control of *Air National Guard Troop Commander* until airlift has been completed. Ammunition will not be issued to individuals before aircraft has landed.
- (d) Cameras may be carried aboard the aircraft; however, they may be used on board the aircraft only with the approval of the *Aircraft Commander* and then without flash attachment.
- (e) Portable radios may be carried aboard the aircraft, but will not be turned on in flight.
- (f) Smoking will not be permitted within 50 feet of the aircraft. While on the aircraft, smoking will be prohibited during ground operation, takeoffs, landings, flight through turbulent air, and when directed by the *Aircraft Commander*.
- (g) Safety belts will be securely fastened during all takeoffs,

landings, and flight through turbulent air.

- (h) Passengers, will not, under any circumstances, walk in the area between the propeller blades or under the engines of parked aircraft.
- (i) Passengers will not board the aircraft until instructed to do so by the *Aircraft Commander* or his representative.
- (j) Alcoholic beverages will not, under any circumstances, be carried aboard *Air National Guard Aircraft*.

(2) LOADING INSTRUCTIONS - AUTOMOTIVE EQUIPMENT

All CDF automotive equipment to be air transported must be prepared as follows:

- (a) Vehicle fuel tanks are to be no more than three-quarters full.
- (b) All water is to be drained from fire engine tanks and backpumps.
- (c) Back fire torches and torch fuel cans are to be no more than one-half full.
- (d) Chainsaw fuel should be drained and extra fuel cans are to be no more than two-thirds full.
- (e) All tools are to be tightly secured on all vehicles.

The following vehicle information is useful when mixed plane loads are being considered. In addition, each *Guard Loadmaster* needs to know the gross weight (less water) and length of all vehicles involved, as well as the front and rear axle weights and the center of gravity on engines. The informa-

tion in the blank spaces has not been determined at this time.

Engine Pilot Model #1 - Less Water

Gross weight - 14,300 lbs. Center of gravity - 58 inches forward of center line of rear axle. Overall length 256 inches. Front axle weight 5,500 lbs., rear axle weight 8,800 lbs.

Engine Pilot Model #4 - Less Water

Gross weight - 12,600 lbs. Center of gravity - 55 inches forward of center line of rear axle. Overall length 231 inches. Front axle weight 4,700 lbs., rear axle weight 7,900 lbs.

Engine Pilot Model #5 - Less Water

Gross weight - 15,540 lbs. Center of gravity - 66 inches forward of center line of rear axle. Overall length 264 inches. Front axle weight 6,760 lbs., rear axle weight 8,780 lbs.

Engine Pilot Model #8 - Less Water

Gross weight - 17,000 lbs. Center of gravity - exact midpoint between center line of front and rear axle. Overall length 23 inches. Front axle weight 7,500 lbs., rear axle 9,500 lbs.

Engine Pilot Model #9 - Less Water

Gross weight 16,500 lbs. Center of gravity - 67 inches forward from rear. Overall length 274 inches. Front axle 7,500 lbs., rear axle 9,000 lbs.

Engine Pilot Model #10 - Less Water

Gross weight - _____ lbs. Center of gravity _____. Overall length _____.

Pickup LWB

Gross weight 6,800 lbs., length - 17 ft. and 8 inches.

Pickup SWB

Gross weight 4,700 lbs., length - 16 ft. and 2-1/2 inches.

FIRE CONTROL HANDBOOK

Sedan Intermediate

Gross weight 4,200 lbs., length - 17 ft. and 8 inches.

Stationwagon Standard

Gross weight 5,200 lbs., length - 18 feet.

Carryall

Gross weight 6,000 lbs., length - 18 ft. and 2 inches.

Van

Gross weight 8,300 lbs., length - 17 ft. and 6 inches.

EMF - Pickup with Tools

Gross weight 10,000 lbs., length - 17 ft. and 6 inches.

Scout - 4 x 4

Gross weight 4,000 lbs., length - 13 ft. and 6 inches.

Light Recon (Ford Courier)

Gross weight 2,900 lbs., length - 14 ft. and 8 inches.

MSU

Gross weight 10,000 lbs., length - 19 ft. and 3 inches.

(3) AIRLIFT COORDINATOR AND AIRLIFT LIAISON OFFICER

Specialized positions are activated at Sacramento, Region, the sending airport and the receiving airport whenever the CDF commits itself to an airlift of personnel and equipment (other than small plane charters). The position of *Airlift Coordinator* will be filled at the Sacramento ECC and the sending and receiving Region ECCs. This function may be handled by the normal ECC staff, if the level of activity permits, or may require a

FIRE CONTROL HANDBOOK

separate individual. The duties of an Airlift Coordinator are:

- (a) Assures himself that an *Airlift Liaison Officer* is activated for each sending or receiving airport within his responsibility and coordinates airlift with the *Airlift Liaison Officer(s)*.
- (b) Establishes contact with the *Sacramento Airlift Coordinator*.
- (c) Coordinates transportation for arriving personnel.
- (d) Sees that a copy of each flight manifest is transmitted to the receiving Region as soon as practical after departure of aircraft.
- (e) Sees that a *Public Information Officer* is assigned, if needed, at affected airports.

Each region will assign an *Airlift Liaison Officer* to each departing and receiving airport being used. Air Attack Base personnel may be used in this capacity if level of activity permits.

Using the "Airlift Operations Plan", called for in Policy 85 of Handbook 5500, for a specified airport, the following duties and responsibilities are assigned to the Airlift Liaison Officer (ALO):

- (a) Establishes a communication route (telephone, radio intercom) with the Region or *Sacramento Airlift Coordinator*.
- (b) Prepares in triplicate a CDF "Airlift Transportation" form (see instructions). Forwards a copy of each flight departure to *Regional Airlift Coordinator* as soon as practical by telecopier.
- (c) Makes certain vehicles left at airport are locked and in a secure area.
- (d) Assures that all CDF personnel are aware of and adhere to

FIRE CONTROL HANDBOOK

- rules and regulations of the Air National Guard, commercial carrier, or the USFS contract aircraft as the case may be.
- (e) Assures that vehicles to be airlifted by Air National Guard have been prepared for loading.
 - (f) Notifies and confirms with the Region or Sacramento *Airlift Coordinator* the arrival or departure times of personnel and equipment. Uses aircraft numbers as shown on the manifest to identify plane loads.
 - (g) Assures that Airlift Operations do not interfere with other CDF activities in progress, particularly at Air Attack Bases. May have to utilize other loading areas and will also consider possible custody problems in handling inmate crews.
 - (h) Establishes priorities on equipment and personnel being loaded.
 - (i) Requests *Assistant Airlift Liaison Officers* if workload warrants.
 - (j) Arranges for other support facilities - i.e., feeding, toilet facilities, if required.
 - (k) Gives departing crews, or arriving crews, instructions and assist them in getting to their destination.
 - (l) Coordinates activities with Air National Guard *Loadmaster* and/or Air National Guard *Liaison*.

FIRE CONTROL HANDBOOK

(4) INSTRUCTIONS FOR AIRLIFT TRANSPORTATION FORM

Each CDF flight will have an assigned CDF "Chief of Party". The *Airlift Liaison Officer* will make this assignment. If several aircraft are used to move a specific module, the *Task Force Leader* or *Hand Crew Coordinator* will be the "Chief of Party" for his aircraft only. Other CDF personnel will be assigned as "Chief of Party" for the remaining aircraft.

The *Airlift Liaison Officer* will fill out the Airlift and Transportation Form in triplicate. He will retain the second copy and forward the original copy to the receiving *Airlift Liaison Officer* with the CDF "Chief of Party." The CDF "Chief of Party" will retain the first copy. The information on the Airlift Transportation Form is vital to demobilization planning.

Note the type of vehicles (FTM-4 Model #4, PU-SWB, etc.) in the vehicle block. Enter radio call sign, "X" number and weight. Check off blocks as all vehicles are inspected to insure proper flight preparations.

Enter names and information requested for all CDF and custody agency personnel in the spaces provided. Handcrew, inmate, or corpsmen names may be lumped after the Crew Supervisor's name.

The *Airlift Liaison Officer* will sign the form and record the total number of personnel aboard the aircraft. He will enter other information as may be required in the "remarks" column or in the body of the form.

c. HELICOPTERS

National Guard helicopters may be used for many functions on fires including reconnaissance, airlifting of personnel or handcrews, airlifting of supplies, etc. A CDF Handie-Talkie pack set and a *CDF Military Helicopter Liaison Officer* will be assigned to each ship to assure communications and coordination for safe operation on fires. (See

following duty statement for Military Helicopter Liaison Officer.) Six Handi-Talkie pack sets are assigned to the National Guard at Mather Air Force Base and Los Alamitos Naval Air Station. These pack sets contain Red (HT) Net and State Net.

The following National Guard helicopters are currently available to the CDF:

OH-58 Military version of the Bell Jet Ranger.

Pilot and three or four passengers. Can be used for movement of limited numbers of people and reconnaissance. The fuel requirements are the same as for our contract Jet Ranger Helicopters, Jet "A".

UH-1d Bell Huey, military version of the Bell 205.

Pilot, Co-pilot, Crew Chief and five to nine passengers. Due to door arrangements and size of machine, the UH-1d is an ideal vehicle for use in large crew shuttles. Fuel requirements are military grade JP-4.

OH-47 Vertol-Boeing 107, this is a twin Rotor-

Banana Type ship. Pilot, Co-pilot, Crew Chief and 35 passengers. Can be used in heavy cargo hauling missions. This helicopter requires a somewhat larger landing area to operate from than the other two types of helicopters.

Ear protection is mandatory due to the very high noise level in and around the OH-47.

Fuel requirements are military grade JP-4 which is available only at military bases and larger airport facilities.

These helicopters are located at Los Alamitos, Fresno, Stockton and Sacramento. The exact number and types at any given location are constantly changing due to assignment and deployment; therefore, it is not possible to request a specific type from a given location. All the helicopters consume large quantities of fuel; therefore, on any anticipated use, planning will be necessary to provide needed fuels.

(1) MILITARY HELICOPTER LIAISON OFFICER

When National Guard helicopters are used by the CDF, a *CDF Military Helicopter Liaison Officer* will be assigned to each helicopter. The *Military Helicopter Liaison Officer* must be experienced in CDF helicopter operations and understand the CDF radio communications system. By flying each mission, the *Military Helicopter Liaison Officer* will provide a vital communications link between the helicopter and CDF forces.

The *Helicopter Liaison Officer* is responsible for the management and operation of the National Guard helicopter. His duties are:

- (a) Works for the Air Attack Boss. Coordinates National guard ship activities with the *Helicopter Manager*.
- (b) Assures that standard CDF helicopter practices are followed.
- (c) Assures that the CDF radio pack set is installed properly and that the inter-communication system with the pilot is operational in the helicopter. (Red (HT) Net and State Net)
- (d) Briefs National Guard personnel as to CDF safety practices, tactical operations, explains work assignments and expected activities.
- (e) Strives to foster and promote good will and understanding between CDF personnel and National Guard personnel.
- (f) Assists the National Guard in servicing helicopters as required and will request supplies, and takes care of National Guard personnel needs from the *Supply Manager*.

- (g) Obtains proper clearance for all flights.
- (h) Keeps status on pilots' hours and National Guard helicopter use and keeps the *Helicopter Manager* advised.
- (i) Assists National Guard in preparing CDF forms as required - FC-33's, FC-42, etc. Advises National Guard personnel of arrangements for feeding, rest and sanitary facilities.
- (j) Informs CDF line personnel, as appropriate, of any National Guard concerns regarding safety, flying operations, or any other problems and tries to resolve them.

1.8 OFFICE OF EMERGENCY SERVICE (OES) (Sec. 5770, Manual of Instructions)

By pre-arranged agreements or during extreme emergencies, the CDF may request the use of OES engines and communication units, which are regularly assigned to various agencies and sub-divisions of State and local Government.

No such equipment shall be requested for fire suppression except when there is need for such equipment to standby and protect structures or communities which are immediately threatened or involved in a forest fire, or when available CDF equipment is inadequate to cope with the fire problem at hand.

Requests shall be made by a responsible CDF official. All requests shall be for a specified number of OES engines and a specified number of personnel and shall be transmitted through prescribed dispatching channels.

FIRE CONTROL HANDBOOK

a. PROCEDURE FOR USE

When ordering and using OES engines on CDF fires, consideration should be given to the following items:

- (1) OES will provide the necessary gas and oil for equipment going to and returning from fires.
- (2) CDF will provide gas, oil, normal servicing, and minor repairs occasioned by the use of OES engines on fires. (Minor Repairs are defined as repair jobs necessary to keep the equipment in operation on the fire and which require not more than two hours for any one job for one mechanic.)
- (3) Agencies other than the Department of Corrections may claim reimbursement for services rendered if the period of response exceeds 24 hours. In this event, a CDF representative shall complete and sign three copies of OES Form 42 (one copy retained for records pertaining to fire, one copy delivered to operator of OES engine, and one copy through channels to OES files).
- (4) CDF Form FC-33 is not required for OES engines.

FIRE CONTROL HANDBOOK

b. LIAISON OFFICER (CDF) RESPONSIBILITIES

The *Liaison Officer* in the fire organization structure is the coordinating link between OES equipment and the remainder of the CDF fire organization. The *Liaison Officer* should:

- (a) Keep records of travel and work time to be turned over to *Timekeeper*.
- (b) Coordinate shift change of personnel or equipment through *Engine Manager*.
- (c) Coordinate all arrangements for service or repair involving OES engines through the *Service and Repair Manager* while equipment is assigned to the fire.
- (d) Investigate and report details of accidents involving OES engines while engaged in fire control work on CDF fires.
- (e) Inventory OES engines in company with an OES representative before the equipment is released.

c. SUPERVISION

Proper direction and coordination of all OES apparatus must be provided by the *Fire Boss* during its use under CDF direction.

NOTE: See Sec. 5770, Manual of Instructions, for pay procedure.

(Handbook now goes to Page 237, 5606 Demobilization)

DEMOCRATIZATION

5606 DEMOBILIZATION

CHAPTER OUTLINE

ITEM	PAGE
5606 DEMOBILIZATION.....	238
.1 GENERAL.....	238
.2 FIRE BOSS RESPONSIBILITIES.....	238
.3 DEMOBILIZATION PLANS.....	239
a. PERSONNEL AND EQUIPMENT.....	239
(1) PLANS CHIEF CHECKLIST.....	240
(2) PROCEDURE.....	241
(3) RELEASE PRIORITIES.....	243
(4) DEMOBILIZATION CENTER.....	243
b. SUPPLIES.....	244
(1) SERVICE CHIEF CHECKLIST.....	245
(2) PROCEDURE.....	246
.4 REPAIRING ACTUAL AND POTENTIAL DAMAGES TO RESOURCES AND PROPERTY..	248
a. NEED FOR REPAIRS.....	248
b. LINE BOSS RESPONSIBILITIES.....	248
c. LINE BOSS CHECKLIST.....	249

5606. DEMOBILIZATION

.1 GENERAL

Demobilization involves the reduction of resources and supplies geared to the lessening requirements of the fire situation. It also involves the performance of certain repair work on the fire line and the completion of all formal and narrative reports by *Function Leaders*.

Planning and preparation for demobilization should begin when it is anticipated that the fire will be controlled or whenever fire conditions permit.

Good demobilization requires a considerable amount of planning and coordination between the *Fire Boss* and his *Function Leaders*. *Demobilization Plans* will be prepared for:

- (a) *Personnel and Equipment.*
- (b) *Supplies.*

The details of demobilization can be greater and more complicated than during mobilization. For that reason, it may be desirable on larger or more complex fires to appoint a *Demobilization Officer* whose job will be to plan the details of an orderly process of demobilization for personnel and equipment. He would be supervised by the *Plans Chief*. A *supply demobilization team* may be designated by Region Office to assist the *Service Chief* in planning the details of an orderly process of demobilization for supplies.

The preceding chapters establish policies and guidelines for mobilization of resources and supplies to support the fire control organization. This chapter presents policy and guidelines for orderly demobilization of the fire control organization.

.2 FIRE BOSS RESPONSIBILITIES

The *Fire Boss* is responsible for managing, supervising and coordinating the activities required for demobilization of a fire control organization. He provides guidelines to:

- a. the *Plans Chief* for preparing a *Demobilization Plan for Personnel and Equipment*, and to
- b. the *Service Chief* for preparing a *Demobilization Plan for Supplies*.

FIRE CONTROL HANDBOOK

The *Fire Boss* approves the two *Demobilization Plans*, and sees that they are carried out according to established guidelines and CDF policy.

The *Fire Boss* also reviews with the *Line Boss* the repair work to be performed on the fire line. He is responsible for determining that this work has been accomplished before all equipment has left the fire line or that firm arrangements have been made for the local Ranger Unit to complete the work at a later date.

.3 DEMOBILIZATION PLANS

a. PERSONNEL AND EQUIPMENT

The *Plans Chief* is responsible for preparing a *Demobilization Plan for Personnel and Equipment*. The *Service Chief* implements the *Demobilization Plan*. The *Plans Chief* and *Service Chief* must closely coordinate activities throughout demobilization to assure that it proceeds orderly and in consideration of the continuing, lingering needs of the emergency.

The "Plan" can involve complications of:

- (1) timing,
- (2) re-grouping *Task Forces*,
- (3) grouping of personnel and equipment from the same Region or Ranger Unit,
- (4) deciding on methods of transportation,
- (5) closely coordinating continuing needs for resources on the fire vs. release of surplus resources,
- (6) providing for inspection of equipment before release,
- (7) replacement of lost or damaged tools and hose,
- (8) arranging for sleeping of crews,
- (9) etc.

Consideration of these and other details must begin as soon as control of the fire is anticipated.

If the job appears to be large and complex, the *Plans Chief* will want to appoint a *Demobilization Officer* to prepare the "Plan" and to help coordinate its implementation with the *Service Chief*. In many details of the "Plan", the *Demobilization Officer* or

FIRE CONTROL HANDBOOK

Plans Chief will confer with the Resource Status Officer, Ground Resource Manager, and the Supply Manager.

(1) PLANS CHIEF CHECKLIST

The Plans Chief:

- (a) *Confers with the Fire Boss on the anticipated effects of control actions and estimated continuing needs for resources.*
- (b) *Sees that sufficient resources are retained to cope with the total fire problem.*
- (c) *Sees that priorities established for release of resources are followed.*
- (d) *Sees that release of resources are gradual but consistent.*
- (e) *Coordinates the release of resources from controlled segments of the fire that are not needed on any other part of the fire.*
- (f) *Sees that a build-up of idle resources is avoided.*
- (g) *Coordinates with Liaison Officer so other agencies are notified of planned releases of their resources.*
- (h) *Sees that records of operation and use are complete for hired personnel and equipment.*
- (i) *Sees that local resources are reassigned to mop-up activities in order to release resources from other Regions and Ranger Units.*
- (j) *Sees that unit groups and travel conveniences are considered during demobilization. Some reassignments will have to be made during fire control work in order to assemble unit groups.*

- (k) Sees that the state of fatigue and CDF policy is considered before releasing personnel to travel home (See Sec. 5607.4).
- (l) Sees that all assigned jobs are properly completed before key personnel are released.
- (m) Determines that fire report and other necessary records and reports are completed before the personnel responsible for them are released.
- (n) Submits to the *Fire Boss* an evaluation report of the *Planning* function, describing unusual problems encountered, solutions used, and suggestions for improving future operations.

(2) PROCEDURE

Figure 11 represents the *Demobilization Plan* working inter-relationships of the fire control organization for *Personnel and Equipment*.

The Plans Chief or Demobilization Officer:

- (a) Obtains guidelines from the *Fire Boss*.
- (b) Obtains recommendations for reducing staffing from each of the *Function Leaders*.
- (c) Prepares preliminary "*Plan*".
- (d) Reviews preliminary "*Plan*" with *Fire Boss, Service Chief, Liaison Officer*, and others.
- (e) Obtains approval from the *Fire Boss*.
- (f) Prepares final "*Plan*".

The Service Chief:

- (a) Notifies the *Ranger Unit Emergency Command Center* of planned releases and receives approval for these releases.
- (b) Arranges for air transportation when necessary.

EXECUTION

RESOURCE
IMPLEMENTATION

PLANNING

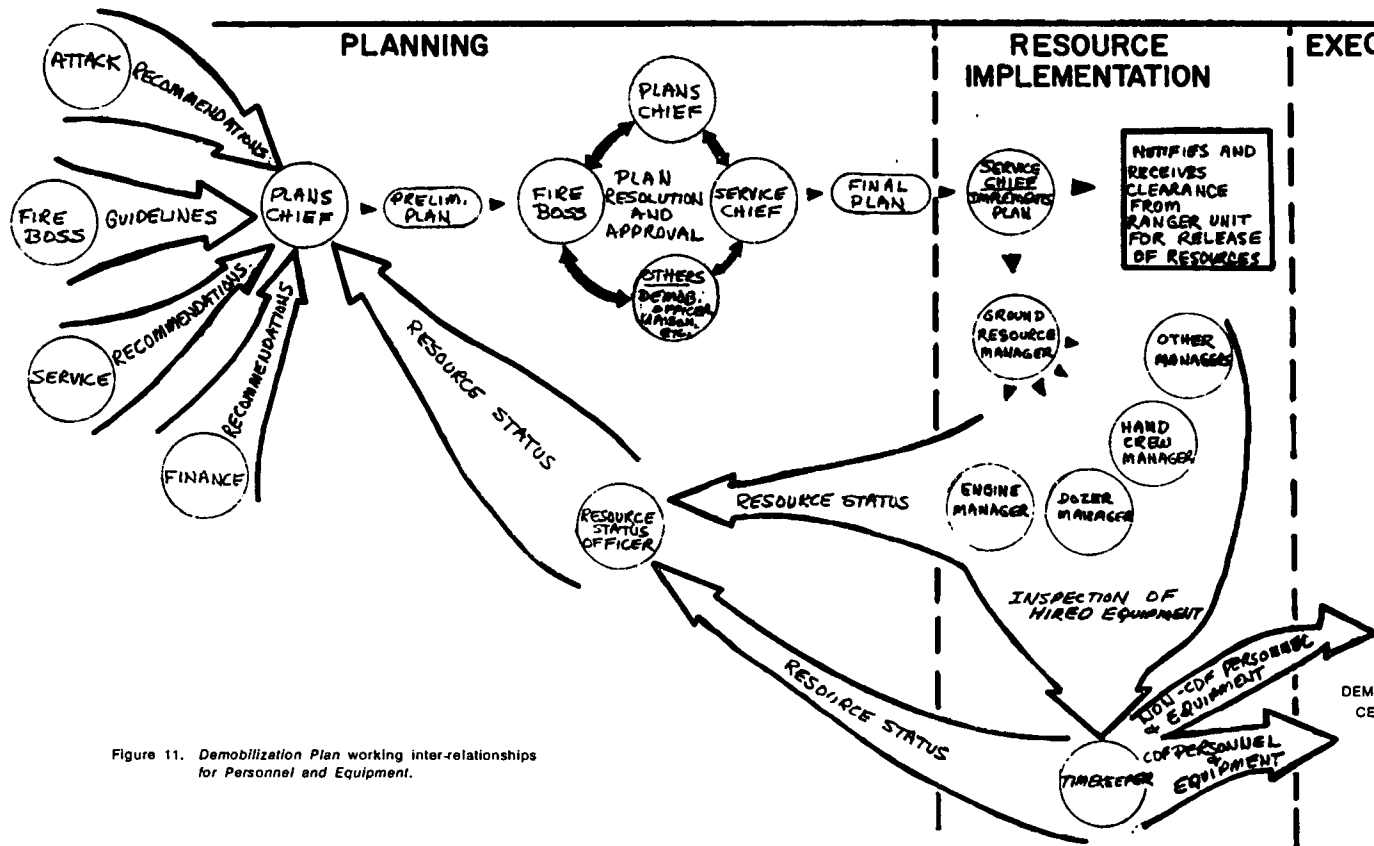


Figure 11. Demobilization Plan working inter-relationships for Personnel and Equipment.

FIRE CONTROL HANDBOOK

- (c) Directs the ground resource management subfunction to:
- (1) Assemble the resources in accordance with the "Plan".
 - (2) Provide direction to *Demobilization Center*, if established.
 - (3) Direct resources through *Timekeeper* for release.

(3) RELEASE PRIORITIES

The following are guidelines for planning release of hired, other agency, and CDF personnel and equipment.

PRIORITY OF RELEASE

1	ORGANIZED FIRE DEPARMENTS
2	OES ENGINES
3	FEDERAL MILITARY FORCES
4	NATIONAL GUARD
5	HIRED PERSONNEL AND EQUIPMENT
6	OTHER AGENCIES (USFS, BLM, etc.)
7	OUT-OF REGION CDF FORCES
8	EFF CREWS
9	WITHIN REGION FORCES
10	RANGER UNIT CDF FORCES

Local conditions, economics, life and property protection responsibilities of sending agencies, etc., may justify deviation from these guidelines.

The *Fire Boss* is responsible for approving these deviations when they occur.

(4) DEMOBILIZATION CENTER

A *Demobilization Center* may be established for CDF personnel and equipment released from the emergency. The "Center" will provide:

- (a) equipment inspection, to include safety repairs and servicing,

FIRE CONTROL HANDBOOK

- (b) rest,
- (c) feeding,
- (d) replacement of lost and damaged tools, and
- (e) arrangements for appropriate ground or air transportation for personnel who require it.

The *Demobilization Center* should be:

- (a) generally not more than 30 minutes driving time from the fire area (see Sec. 5607.4),
- (b) centrally located so it is a convenient stop for resources on their way home, and
- (c) easy to find.

The *Fire Boss* is responsible for deciding if a *Demobilization Center* is needed for a single fire.

The *Regional Chief* is responsible for deciding if a *Demobilization Center* is needed for multiple fires in the Region.

b. SUPPLIES

The *Service Chief* is responsible for preparing and implementing a *Demobilization Plan for Supplies*. He will be assisted by the *Supply Manager* and will assure that demobilization of supplies proceeds orderly and in consideration of the continuing, lingering needs of the emergency.

The "*Plan*" will involve the complications of materiel management procedures in Sec. 1667 of the *Materiel Handbook*. Consideration of these and other details must begin as soon as control of the fire is anticipated.

Region Office may designate a *supply demobilization team* to assist the *Service Chief* with demobilization of supplies not used in the suppression effort. In many details of the "*Plan*", the *Service Chief* will confer with the *supply demobilization team* and the *Supply Manager*.

(1) SERVICE CHIEF CHECKLIST

The *Service Chief*:

- (a) Confers with the *Fire Boss* on the anticipated effects of control actions and estimated needs for supplies.
- (b) Sees that inventories of supplies are reduced commensurate with the release of personnel and equipment.
- (c) Sees that perishable foods are not ordered during the last stages of demobilization.
- (d) Sees that disposition of supplies is consistent with established guidelines and CDF policy.
- (e) Sees that additional personnel are requested, if needed, to handle workload. Personnel released from other functions of the fire organization can be reassigned to these new duties.
- (f) Sees that hired equipment is properly inspected before release.
- (g) Sees that all assigned jobs are properly completed before key personnel are released.
- (h) Checks with *Line Boss* to determine that all tools and supplies have been returned from the fire line.
- (i) Determines that necessary records and reports are completed before the personnel responsible for them are released.
- (j) Submits to the *Fire Boss* an evaluation report of the *Service* function, describing unusual problems encountered, solutions used, and suggestions for improving future operations.

FIRE CONTROL HANDBOOK

- (k) Sees that *Base Camp, Spike Camp, and Staging Areas* are properly-- dismantled.
- (l) Sees that all areas are left in proper and clean condition.
- (m) Inspects areas with property owner, if available.
- (n) Inventories damages to property.
- (o) Arranges for repairs to property and/or informs owner of his recourse to claim money for damages from the State through the State Board of Control (Sec. 5601.4.1). (Depending on the situation, he may give this task to the local Ranger-In-Charge for resolution.)

(2) PROCEDURES

Figure 12 represents the *Demobilization Plan* working inter-relationships of the fire control organization for *Supplies*.

The Service Chief:

- (a) Obtains guidelines from the *Fire Boss*.
- (b) Requests supply inventory and assistance from *Supply Manager*.
- (c) Requests supply inventory from each of the following:
Ground Resource Manager, Helicopter Manager, Service and Repair Manager, and Camp Manager.
- (d) Advises Ranger Unit ECC of intent to close *Base Camp*.

*Note - Refer to Section 1667.4 of the *Materiel Handbook* for management of material purchased from the *Emergency Fund*.

- (e) Prepares preliminary "*Plan*" to utilize surplus.
- (f) Reviews preliminary "*Plan*" with *Fire Boss, supply demobilization team, Supply Manager, and others.*

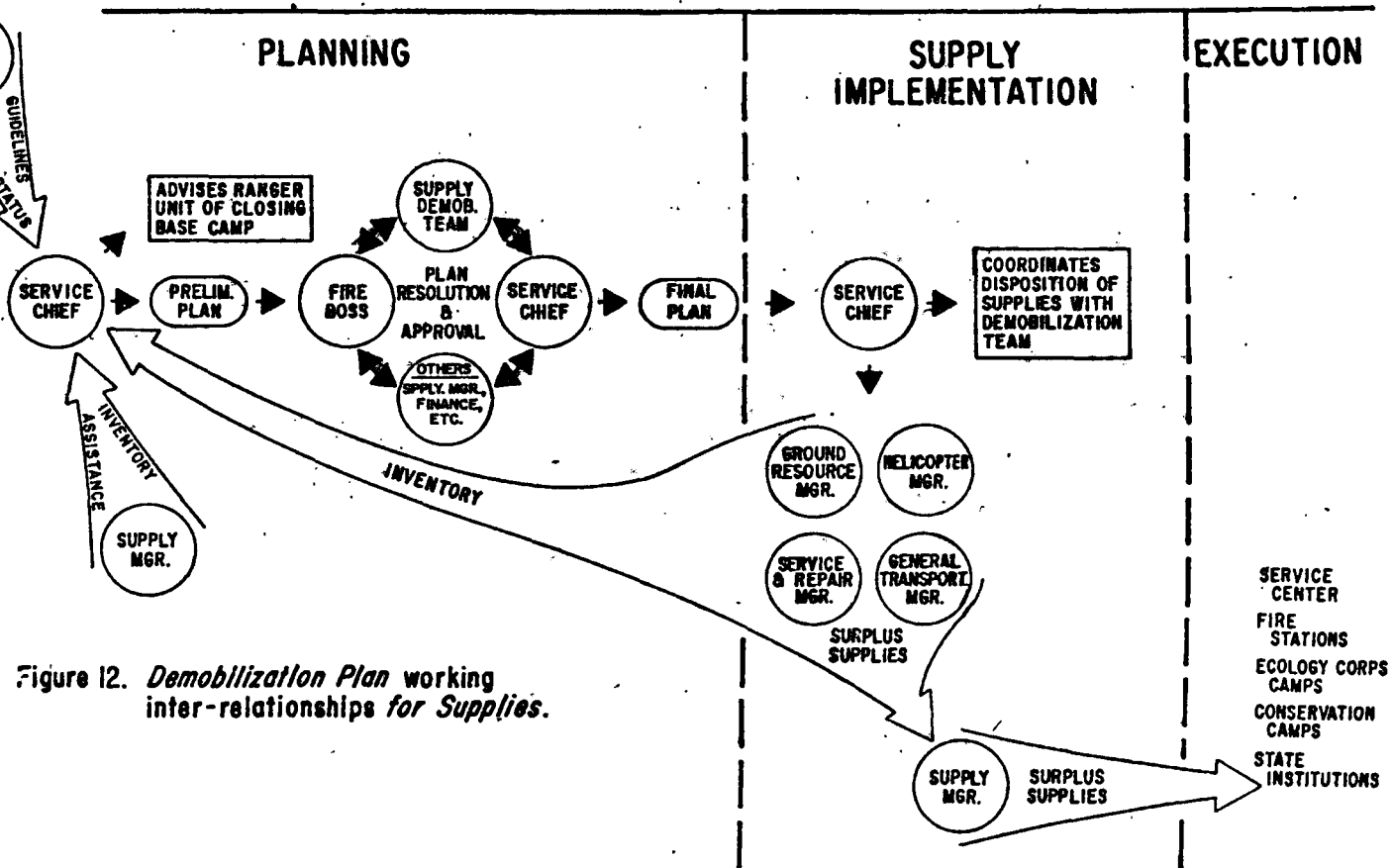


Figure 12. Demobilization Plan working inter-relationships for Supplies.

- (g) Obtains approval from the *Fire Boss*.
- (h) Prepares final "Plan".
- (i) Implements "Plan".
- (j) Instructs *Ground Resource Manager*, *Helicopter Manager*, *Service and Repair Manager*, and *Camp Manager* to provide *Supply Manager* with surplus supplies.
- (k) Coordinates disposition of supplies with the *supply demobilization team* and *Supply Manager*.
- (l) *Supply Manager* arranges for disposition of supplies in accordance with the "Plan".

.4 REPAIRING ACTUAL AND POTENTIAL DAMAGES TO RESOURCES AND PROPERTY

a. NEED FOR REPAIRS

The CDF's objective of fire suppression is to hold damages to life, property and resources to some acceptable level within social, political, and economic constraints. Too often in the past, the CDF's fire suppression activities have resulted, directly or indirectly, in considerable damages to soil, streams, fish habitat, and private property. To the extent possible and practicable these damages should be minimized but with due consideration for fire suppression requirements.

Following fire suppression activities, equipment and personnel should not be released from the fire until some reasonable repairs can be made to private property and actions can be taken to minimize potential damages to soil, streams, and fish habitat.

b. LINE BOSS RESPONSIBILITIES

The *Line Boss* is responsible to the *Fire Boss* for inventorying actual and potential damages to resources and property. He is also responsible for taking whatever actions are necessary and reasonable following the control of a fire to repair actual damages

or to decrease the potential for further damages to resource and property values.

c. LINE BOSS CHECKLISTS

- (1) Construct water bars along all fire lines and along those roads which have been built especially to accommodate fire control activities. Use the following guidelines to construct water bars:

- (a) Distances between waterbreaks as measured along the surface of the ground should be as follows:

MAXIMUM DISTANCE BETWEEN WATERBREAKS (IN FEET)

Estimated Erosion Hazard Rating*	Road or Fireline Gradient			
	10% or <u>Less</u>	<u>11 - 25%</u>	<u>26 - 50%</u>	<u>Over 50%</u>
Extreme	100	75	50	50
High	150	100	75	50
Moderate	200	150	100	75
Low	300	200	150	100

*Should be judged by CDF Forester or other qualified person.

- (b) Effective waterbreaks shall be constructed at all natural water courses regardless of the above quoted distances, except where culverts or bridges are provided.
- (c) Waterbreaks should be cut diagonally a minimum of 6 inches into the firm roadbed or fire line surface and should have a continuous firm embankment of at least 6 inches in height immediately adjacent

to the lower edge of the waterbreak cut.

- (d) Waterbreaks should provide for unrestricted discharge at the lower end of the waterbreak so that water will be discharged and spread into the adjacent area in such a manner that erosion in the discharge area shall be minimized.
- (e) Water should be discharged into some form of vegetative cover or duff whenever possible.
- (2) Block those roads, which have been built especially to assist in fire control activities, if they are not to be used in further fire-related activity.
- (3) Clear all stream bottoms of debris deposited as a result of fire control activities, to permit free flow of water and to decrease potential damages to fish habitat.
- (4) Repair damages to private property within reasonable limits and within the capabilities of available resources.
- (5) List damages to property created by fire suppression activities, and which have not been repaired, and report this information to the *Service Chief* for resolution with property owners.

SAFETY

5607 SAFETY

Chapter Outline

Item	Page
5607 SAFETY.....	253
.1 GENERAL.....	253
.2 SUPERVISORS RESPONSIBILITY.....	253
a. Safety Officer.....	253
b. Supervisors' Checklist.....	253
.3 SAFETY CLOTHING AND PERSONAL APPAREL.....	256
a. Structural Fire Suppression.....	256
b. Wildland Fire Suppression.....	257
c. Safety Clothing Use.....	258
(1) Hard Hat or Helmet.....	258
(a) Cleaning Hat Bands and Straps.....	259
(2) Safety Goggles/Eye Protection.....	260
(3) Ear Protection.....	260
(4) Nomex Hoods.....	261
(5) Nomex Shirt/Pants Combination or Nomex Jumpsuit.....	261
(6) Gloves.....	261
(7) Boots.....	262
(8) Chain Saw Chaps.....	262
(9) Turn-Out Coats, Pants, and Boots.....	262
(10) Safety Glasses.....	263
(11) Contact Lenses.....	263
(12) Health and Safety Standards for Hair.....	263
d. Safety Clothing for Fire Control Pick-up Labor.....	265
.4 DRIVER REST PERIODS.....	266
.5 ELECTRICAL FIRE LINE HAZARDS.....	267



5607 SAFETY

.1 GENERAL

Fire fighting and other emergency work are recognized to be hazardous occupations. However, fires and other emergencies must be controlled, and fire control personnel must learn to assess the dangers in their true perspective and take immediate action accordingly.

Section 1230 of the Manual of Instructions contains the CDF's Safety Program. Portions of Section 1230 apply to CDF's "fire going" personnel. Since the Manual of Instructions is not available at each fire station, pertinent safety information will be duplicated in this chapter on Safety.

Handbook 1190 contains considerable detail on fire line safety. Since Handbook 1190 is available at the fire station and conservation camp level, no attempt will be made to duplicate this material in Handbook 5600. The safety material in Handbook 5600 will be intended to complement the material in Handbook 1190. Both will provide CDF's "fire going" personnel with sufficient detail on fire line safety.

.2 SUPERVISORS' RESPONSIBILITY

Every employee has a responsibility for safety on the fire line. However, supervisory personnel are primarily responsible for the safety of personnel under their supervision. This responsibility must be accepted by all persons filling supervisory positions in the *fire organization structure*.

a. SAFETY OFFICER

The position of *Safety Officer* will be filled on fires when the *Fire Boss* feels there is sufficient workload for this position.

The designation of a *Safety Officer* on the fire does not relieve supervisors of their responsibility for safety.

b. SUPERVISORS' CHECKLIST

Supervisors must be aware that their actions and decisions affect not only themselves but also the safety of personnel and equipment under their direction. Supervisors should:

FIRE CONTROL HANDBOOK

- (1) See that proper safety clothing and personal apparel, as stipulated by CDF policy, is worn by all employees.
- (2) Provide proper supervision to employees by:
 - (a) Evaluating personnel's physical and mental fire fighting qualifications.
 - (b) Developing a way to eliminate or avoid hazards by analyzing work problems.
 - (c) Discussing safety for a few minutes at the beginning of each shift.
 - (d) Becoming immediately involved whenever injury occurs by investigating the accident with persons involved.
 - (e) Inspecting on-job work to be sure it is done safely and efficiently.
 - (f) Providing leadership in applying corrective action aimed at eliminating cause of accident.
 - (g) Setting a personal example of safe behavior and enforcing safe practices and procedures.
 - (h) Remaining calm and displaying confidence to personnel.
- (3) Be familiar with the physical capabilities and limitations of fire fighting equipment under their direction.
- (4) See that equipment is not left parked on narrow roads in such a way that it blocks traffic.
- (5) Have all vehicles on narrow roads pointed toward the direction of departure.
- (6) See that "safe areas" are provided on dozer lines constructed in advance of a fire.
- (7) Know and observe 10 standard fire fighting orders.
 - (a) Keep informed on weather

- conditions and forecasts.
- (b) Know what the fire is doing at all times, observing personally and using scouts.
- (c) Base all actions on current and expected behavior of fire.
- (d) Have escape routes for everyone and make them known.
- (e) Post a lookout when there is possible danger.
- (f) Be alert, keep calm, think clearly, act decisively.
- (g) Maintain prompt communication with personnel, supervisor and adjoining forces.
- (h) Give clear instructions and be sure they are understood.
- (i) Maintain control of the personnel at all times.
- (j) Fight fire aggressively but provide for safety first.
- (8) Know and observe 13 fire situations that shout, "Watch Out!", when:
 - (a) Building line downhill toward a fire.
 - (b) Fighting fire on a hillside where rolling material can ignite fuel from below.
 - (c) The wind begins to blow or increase or change direction or when a sudden calm occurs which may indicate a change of 180° in the wind direction.
 - (d) The weather gets hotter and drier.
 - (e) On a line in heavy cover with unburned fuel between fire fighter and the fire.
 - (f) Away from burned area where terrain and/or cover makes the travel difficult and slow.
 - (g) In country that has not been seen in the daylight.
 - (h) In an area where fire fighter is unfamiliar with local factors influencing fire

FIRE CONTROL HANDBOOK

behavior.

- (i) Attempting a frontal assault on a fire with engines.
- (j) Getting frequent spot fires over the line.
- (k) The main fire cannot be seen and (you are not in) when out of communication with anyone who can see it.
- (l) An unclear assignment or instructions have been received.
- (m) Drowsy and feel like taking a nap near the fire line.

Note: Refer to Handbook 1190 for more detail on items 7 and 8 above.

- (9) Provide reasonable rest periods, especially at high elevations and on hot days.

.3 SAFETY CLOTHING AND PERSONAL APPAREL

(Section 1232.3, Manual of Instructions)

The CDF as an "employer" is deemed responsible for complying with Safety regulations in furnishing personal protective clothing.

Protective apparel must be furnished at State expense or by the contracting agency to protect employees engaged in work when a hazard exists. Supervisors have the responsibility of enforcing compliance and informing an employee what will not be worn if an article constitutes a safety hazard.

The intent of the Director's standards for use of safety clothing is to protect the employee from inherent hazards encountered in fire suppression activities and other work assignments.

Below are listed required and recommended safety clothing and apparel for fire control activities.

a. STRUCTURAL FIRE SUPPRESSION

Wherever structural fire fighting crews have been established, they shall be furnished with a sufficient

FIRE CONTROL HANDBOOK

supply of safety clothing. The safety uniform shall be worn when responding to or engaged in suppression of structural, vehicle, fuel or other typical "Schedule A" type fires.

The county, local district, or other contracting party must be informed by the CDF of the obligation incumbent upon all structural fire departments to provide personal safety clothing as listed. The cost of such equipment is to be borne by the party assuming the financial obligation for the operation of the particular structural fire service.

The structural safety uniform consists of:

- (1) Safety Helmet.
- (2) Gloves.
- (3) Goggles or Shield.
- (4) Turn-out Coat.
- (5) Turn-Out Pants.
- (6) Turn-out Rubber Boots with steel toes and puncture proof soles.
- (7) Ear protection as required.
- (8) Chaps while operating power saws.
- (9) Breathing apparatus as required.

For wildland fire suppression crews (Schedule B) responding to structural fires, the structural safety uniform must be utilized to the extent the garments and equipment are available. Personnel, who cannot be outfitted with the structural safety uniform, *must* wear the wildland safety uniform.

b. WILDLAND FIRE SUPPRESSION - Safety uniform for permanent and seasonal CDF employees: 1./

State furnished yellow nomex clothing is not to be worn during normal station work activities unless the station supervisor so authorizes during periods of high risk. Green nomex trousers may be worn by supervisory personnel during all duty

FIRE CONTROL HANDBOOK

activities except during a public relations or fire prevention assignment.

The following items will be furnished at State expense, except for boots, and all will be worn during wildland fire suppression activities:

- (1) Safety Helmet.
- (2) Goggles.
- (3) Ear Protection, as required.
- (4) Nomex Hoods.2/
- (5) Either nomex shirt with yellow or green nomex pants, or yellow jumpsuit.
- (6) Gloves.
- (7) Chain saw Chaps, as required.
- (8) Lug-type Work Boots (purchased by employee)

When CDF structural fire suppression crews (Schedule A) respond to a wildland fire, either the structural safety uniform or the wildland safety uniform will apply except safety goggles must be worn in place of shield.3/

- 1/ The custodial agency for inmates and wards is encouraged to furnish a similar safety uniform.
- 2/ Where nomex hoods have been received, they shall be worn.
- 3/ Schedule A crews which have wildland fire protection in their station influence area shall be furnished with wildland safety uniforms at State expense.

c. SAFETY CLOTHING USE

The Director's standards of use on fire suppression activity are:

(1) HARD HAT OR HELMET

All personnel will wear the standard issued safety helmet or an OSHA approved fireman's style

FIRE CONTROL HANDBOOK

helmet while engaged in, responding to, or returning from fire suppression activities.

The standard safety helmets provided by the CDF shall be of the "cap" type, made of polycarbonate thermoplastic material, with headlight clips, nape strap and chin strap as standard attachments.

Safety helmets shall be color coded for recognition purposes and shall be issued to personnel as follows:

- | | |
|--------------------------|---|
| (a) Administrative | -white |
| (b) Fire Control Classes | -yellow |
| (c) Ecology Corpsmen | -blue |
| (d) Inmates & Wards | -As determined by the cooperating agencies. |

A CDF decal two inches in diameter will be affixed to all safety helmets worn by CDF employees. Ecology Corpsmen are to wear Ecology decals. Decals are to be centered on the front of the crown, the bottom one-fourth inch (1/4") above the brim. Conservation camp inmates and wards are not to wear the CDF decal on their safety helmets. The camp's identification decal is to be centered on each side of the safety helmet one-fourth inch (1/4") above the brim.

There shall be no attachments or adornments on safety helmets except fire line and support classification "stick-on" labels or other identification authorized in an official CDF communication from the Director.

(a) CLEANING HAT BANDS AND STRAPS

In order to assure a reasonable degree of personal cleanliness, employees will be required to keep headbands and chin straps clean by washing in a warm detergent soap solution followed by thorough rinsing in cold water. When such safety helmet (and accessory) material loses its strength or deter-

iorates through use and time, it should be replaced.

Safety helmets must be issued with new headbands and chin straps, and in a clean sanitized condition.

(2) SAFETY GOGGLES--EYE PROTECTION

All personnel will wear goggles while traveling in open trucks and when engaged in fire suppression activities where there is a possibility of airborne or flying particles entering the eyes. Supervisors have the authority to discontinue the use of goggles in those situations where continued use constitutes a greater safety hazard.

Goggles must meet all current standards to be acceptable for use. A list of approved goggles will be published periodically by the Safety Coordinator of the Department of Forestry.

Contact lenses may not be used in lieu of prescription eyeglasses. (See 5607.3c.(11))

(3) EAR PROTECTION

Ear protection is to be issued to any employee subject to operations producing high intensity noises (Refer to Calif. Adm. Code, Title 8, Industrial Relations).

Employees using or working in close proximity of tools or equipment producing loud noises must be provided with suitable ear protection. All ear protectors shall be evaluated, before purchase, by comparing them with a published list of acceptable and rated protective devices approved by the California Division of Industrial Safety. The Safety Coordinator of the Department of Forestry or your local Division of Industrial Safety representative can provide this information upon request.

Employees who are assigned to injurious noisy environments must be protected with ear plugs or ear muffs.

NOTE: All reuseable ear protectors (muffs) will be maintained in a sanitary condition and must be cleaned before

FIRE CONTROL HANDBOOK

transfer between employees to prevent the chance of passing infection.

NOTE: Employees having perforated ear drums shall not, unless cleared by a medical doctor, be permitted to use respiratory protection equipment, filter or self-contained breathing apparatus, regardless whether or not they are using ear protection devices.

(4) NOMEX HOODS

All personnel will wear Nomex Hoods attached to their safety helmets for ready use during severe exposure or blowup conditions. (See footnote 2/ 5607.3b).

(5) NOMEX/PANTS COMBINATION OR NOMEX JUMPSUITS

These items of apparel will be worn by all employees for personal protection while engaged in fireline activities.

The shirt will be worn tucked in the Nomex pants. If heat from physical stress becomes a problem, the uniform shirt and trousers may be removed as long as underclothing is worn.

Only when a crew supervisor is *absolutely certain* there is no risk to his crew during mop-up or overhaul conditions may he authorize removal of Nomex or turnout protection.

(6) GLOVES

All personnel will wear leather gloves while engaged in wildland fire suppression activities. Gloves for structural fire suppression activities may be either leather, moisture proof, or vapor proof depending upon local need.

Supervisors have the authority to discontinue the use of gloves in those situations where continued use constitutes a greater safety hazard. The combination of gloves with fire retardant on them and swinging hand tools such as

an ax can be dangerous.

(7) BOOTS

All persons in fire suppression will wear heavy-duty, lace-type work boots with deeply lugged soles and heels such as Vibram, and leather tops at least eight inches in height. The toe of the boot should be of hard material such as hard leather to reduce the potential of toe injuries. Steel toes are not required, but they do give added protection. Such boots are acceptable for structural fire protection of regular CDF crews. In no case will wedged sole boots be permitted.

Personnel exempt from wearing boots with lug soles will be Heavy Equipment Operators, personnel needing calked soles, airbase personnel and those employees engaged in strictly local government fire protection where turn-out boots are furnished.

For those employees falling into one of these exceptions, the bottoms of the boots must be of such composition as to reduce the tendency to slip and fall, particularly where working on slippery metal surfaces.

Inexperienced fire fighters should be instructed as to the importance of wearing at least one heavy weight pair of socks, or combination of a light and heavy weight pair, in order to keep their feet healthy, especially on *Major Fires*.

(8) CHAIN SAW CHAPS

Chain saw chaps or comparable protection will be worn while operating chain or power saws.

(9) TURN-OUT COATS, PANTS, AND BOOTS

All personnel will wear available turn-outs and boots while engaged in suppressing structural and other typical "Schedule A" type fires.

(10) SAFETY GLASSES

Employees engaged in fire fighting or manual labor tasks should be encouraged by management to secure safety glasses when their vision needs correcting or when they wish to wear colored glasses to reduce the chance of eye injuries. Safety glasses *must not be used as a substitute for goggles or face shields.*

(11) CONTACT LENSES

Initial Attack personnel manning engines, dozers, and conservation camp crews shall not wear contact lens during hours of employment. Those persons needing vision correction should provide themselves with safety glasses (see Section 1232.3.7 Manual of Instructions - Safety Glasses by Prescription).

No personnel shall wear contact lens during fire suppression activities or at any work environment where exposure to dust or chemicals is possible.

Dust particles can easily get under a contact lens and cause considerable damage to the eye if not removed. Under field conditions, it is difficult to remedy this situation, including the possibility of dislodging and losing the lens in which case vision would be impaired for work efficiency and safety. In addition to this, the lens should be worn no more than 18 hours (recommended, 12) per day. This requires the removal of lens under sanitary conditions which is usually not possible at work locations.

(12) HEALTH AND SAFETY STANDARDS
FOR HAIR

Health and safety standards and regulations established by the Division of Industrial Safety - State of California, California Health and Safety Code, and safety practices of fire fighting services preclude unsafe grooming standards for

fire fighting employees of the CDF.

Safety practices for fire fighting services necessitate the following grooming requirements (see Section 1177, Manual of Instructions).

These standards are deemed reasonable and shall be the minimum guidelines to be complied with by uniformed CDF employees (except clerical personnel).

(a) Hair

- (1) Hair shall be neat, clean, trimmed, and present a groomed appearance.
- (2) Hair shall be worn so that it does not extend below the bottom of the uniform shirt collar while standing in an erect position.
- (3) Hair may be combed over the ears but shall not extend below the bottom of the ears, nor more than two inches in front of the ears.
- (4) Hair which is styled or combed forward shall be no lower on the forehead than the eyebrows, measured from the high point of the eyebrows.
- (5) Moderate "natural" hair styles are permitted if they qualify within the limits described above. However, the maximum extension from the scalp shall not exceed two inches.
- (6) Hair styles that preclude the wearing of the approved CDF safety helmet are precluded.

FIRE CONTROL HANDBOOK

(b) Uniformed personnel shall be clean shaven; however, neatly trimmed sideburns and mustaches are permissible.

- (1) Sideburns shall not extend below the bottom of the earlobe and shall end with a cleanshaven horizontal line. The maximum width at the bottom of the sideburns shall not exceed 1-1/2 inches.
- (2) Mustaches shall not extend below the bottom of the upper lip, nor more than 1/2 inch beyond the corners of the mouth.
- (3) Sideburns or mustaches which preclude the proper sealing of self contained breathing apparatus face masks are not permitted.

(c) The wearing of earrings or other facial ornaments is prohibited.

Only for brief periods of time, for medical reasons, may any exceptions be authorized to these safety requirements.

d. SAFETY CLOTHING FOR FIRE CONTROL PICK-UP LABOR

Pick-up labor that immediately augments *Initial Attack* forces may be impressed or hired by CDF employees without initially providing Nomex safety clothing. Nomex safety clothing will be provided at the earliest opportunity by the CDF for pick-up labor. It is felt that the CDF cannot lose the advantages of rapidly augmenting *Initial Attack* forces because of the logistical problems

involved in furnishing Nomex clothing to pick-up labor.

The safety uniform standard for any regular fire department, fire district, or volunteer fire company will be acceptable to the CDF when working on a CDF fire.

.4 DRIVER REST PERIODS (SEC. 1237.1.1, MANUAL OF INSTRUCTIONS).

CDF management has the responsibility to see that motor vehicle operators are adequately rested to ensure safe vehicle operation for the safety of drivers, passengers, and others using highway systems. Each CDF motor vehicle operator also shares this responsibility.

Any driver who feels sleepy while driving shall immediately look for a rest stop well off the road, where he can rest, stretch, and walk around, or otherwise refresh himself before continuing. Whenever a driver stops for other than a brief rest, he shall notify the nearest *Emergency Command Center* (ECC) of his action so that the ECC is aware of his location and the duration of his delay.

No precise criteria can be established regarding driving and rest periods for forces responding long distances to an emergency, since the needs of the emergency, the travel distances, and the overall physical condition of the driving personnel must dictate rest requirements. After extended periods of travel without rest, responding forces must necessarily rest upon arrival at their destination before they are of any significant value in abating the emergency.

For this reason and for accident-injury prevention, it is CDF practice to use established rest stops in the middle of long trips. Instructions regarding stopping and/or resting and feeding at intermediate points should be rigidly adhered to in order that the necessary preparations are adequate for feeding, sleeping, etc., and no overages or shortages occur. The Sacramento ECC will coordinate with Region ECC on arrangements for rest stops for long trips.

FIRE CONTROL HANDBOOK

In order to minimize the risk of accidents by tired drivers who may have undergone extended periods of emergency activity, the following policy shall govern the *release* of CDF personnel from a fire or other emergency assignment for return to home base or to any other non-emergency location. If the vehicle operator has been awake for more than 17 hours, including work and travel time, and the travel time upon release is more than 30 minutes, the vehicle operator will not be released until he has obtained a minimum of four (with a recommended eight) hours rest. This policy will be in effect even when two drivers are available unless one driver has had at least four hours rest immediately preceding the release.

Where the travel time is 30 minutes or less, release can be made by the responsible supervisor after careful consideration of all safety factors affecting the driver have been evaluated and everyone concerned, including the driver, feels reasonably sure the driver will be physically able to make the trip safely. After release, when it is necessary to drive long distances, drivers should rest at least four (with a recommended eight) hours after each ten hours of continuous driving effort.

.5 ELECTRICAL FIRE LINE HAZARDS

All Ranger Unit Administrators are required to discuss *electrical fire line hazards and other special hazards* to life and safety with employees. This would include hazards that may be encountered by CDF personnel during emergency operation.

The following policy will apply to all electrical fire line hazards and other special hazards to life and property encountered by CDF personnel.

- a. The first employee observing a down or sagging powerline or other special hazard shall, if he is a seasonal firefighter, notify the first available supervisory person, or, if he is a supervisor, take

the following action:

- (1) Station sufficient personnel to secure the hazardous area from entry by firefighters and the public.
 - (2) Immediately request the ECC to alert all units assigned to the fire and notify the utility company to shut off the power or gas.
 - (3) As soon as possible, flag the perimeter of the hazard area with a continuous yellow and black barricade safety tape, at a minimum distance of 25'. Greater distances may be required, depending upon the type of hazard.
 - (4) Prevent personnel from entering the hazard area until a responsible utility official confirms the area is safe; or, in the case of downed powerlines, that the power is off and the lines are grounded.
- b. Yellow and black shall be designated as the standard color for identifying hazardous conditions that exist at the scene of an emergency; and further, all CDF vehicles shall carry a minimum of 100 yards of such colored safety tape.
- c. When notified of a down or sagging powerline or other special hazard to life and safety, the ECC will:
- (1) Transmit three (3) alert tones.
 - (2) Announce type of electrical hazard or other special hazard.
 - (3) Confirm with each unit committed to the incident that above message was received.
 - (4) Notify *Fire Boss* of any unit

committed who did
not acknowledge message.

- (5) Notify responsible utility company to take appropriate action to abort the hazard.

- d. Whenever an immediate threat to life is identified on a going fire, the first person making that observation must presume that, in the absence of safety markings and/or guard personnel, no one else is aware of the hazard. It is therefore incumbent upon that first individual to alert the ECC or an administrative officer, of the threat and to initiate the above safety actions.



5608 PRE-ATTACK PLANNING

CHAPTER OUTLINE

	PAGE
5608 PRE-ATTACK PLANNING.....	273
.1 GENERAL.....	273
.2 ELEMENTS OF THE PLAN.....	273
.3 DEVELOPMENT OF THE PLAN.....	274
a. General.....	274
b. Existing and Proposed Fire	275
Defense Improvements.....	275
(1) Roads.....	275
(2) Trails.....	276
(3) Fuelbreaks.....	275
(4) Firebreaks.....	276
(5) Powerline rights-of-way..	276
(6) Heliports and helispots..	276
(7) Base Camp, Spike Camp,	276
and Staging Area Sites..	276
(8) Water Sources.....	276
(9) Safety Islands.....	276
(10) Tractor Loading	
Locations.....	277
(11) Natural Barriers.....	277
(12) Special Interest Areas..	277
(13) Fuels and Topography....	277
(14) Fire Control Lines.....	277
c. Block Map.....	277
(1) Map.....	277
(2) Written Description.....	279
(3) Construction and	
Maintenance.....	279
d. Typical Description of a	
Fire Control Line.....	279

5608 PRE-ATTACK PLANNING

.1 GENERAL

Pre-attack Planning is a process of identifying, inventorying, and evaluating fire intelligence information for a given planning unit. It includes an inventory of fire defense improvements, maps and aerial photographs of fire control facilities, and detailed written plans for suppression action. It is not a substitute for judgment on the fire ground; however, it is intended to provide fire managers with valuable information for planning fire strategy, locating fire control lines, and allocating available suppression forces for fast, effective, and efficient control action.

Pre-attack Planning does not replace planned dispatching, as reflected in the CDF's Running Card System. Only when a fire escapes *initial attack* does a *Pre-attack Plan* become the basis of information for determining strategy to control the larger fire.

.2 ELEMENTS OF THE PLAN

Pre-attack Planning uses maps, oblique aerial photographs, and written statements to locate, inventory, and describe a number of elements useful in fire suppression operations. These elements include existing and proposed fire defense improvements such as roads, trails, fuelbreaks, water supply points, and helispots. They also include natural barriers, special interest areas, and the locations of base camps and spike camps.

3 DEVELOPMENT OF THE PLAN

(Details are available from Fire Protection Section, Director's Office).

a. GENERAL

A separate *Pre-attack Plan* is developed by Ranger Unit personnel for each natural geographical block of land, varying generally from 10,000 to 30,000 acres in extent. Therefore, there would be "Plans" for at least one and perhaps several blocks in each of the CDF's Ranger Districts.

Black-and-white oblique aerial photographs of each block can provide valuable assistance in the planning effort. All elements of each "Plan" can be delineated on the photos and on large scale maps, using black India Ink and the symbols shown below.

The "Plan" for each block is placed in a separate folder and copies are distributed to each District Ranger involved, Ranger Unit Headquarters, and Regional Headquarters. The "Plans" are updated as changes are made in road systems, implementation of proposed fire defense improvements, etc.

The "Plan" should include the following content:

- *Block Map

- Oblique Aerial Photo of Block
- Instructions for use of Block Book
- Special Instructions for the Block

- Description of Block Boundaries and Area

- Numerical Index of Fire Control Lines (includes roads, fuelbreaks, firebreaks and planned fireline locations)

- Water Locations

- Support Facilities Locations

- Tractor Loading Locations and Transport

FIRE CONTROL HANDBOOK

Route of Travel

Helispot and Heliport Locations

Special Interest Area.

*Note - Each block should be identified by A,B,C, etc.

b. EXISTING AND PROPOSED FIRE DEFENSE IMPROVEMENTS

(1) ROADS.

Indicate the length of each road interval, the standard of the road, and whether the road can be negotiated by conventional drive or 4-wheel drive vehicles. Note also the extent of the road that can be negotiated by bulldozer transports, both medium and large. Specify where travel by bulldozer transports should cease and bulldozers be unloaded for further travel along the road. Designate the unloading spots for the bulldozer along that portion of the road which can be negotiated by the transports. Describe the average slope of the road and the maximum grade of 1/8 mile or more in length.

(2) TRAILS.

Designate the length, average slope, and maximum slope over 100 yards in length for each trail. Note whether or not the trail is negotiable by tracked vehicles up to 3' in width.

(3) FUELBREAKS.

Indicate the average width of the fuelbreak. Show whether or not there is a road, firebreak, or other break to mineral soil traversing the fuelbreak. Describe the general vegetative cover both within the fuelbreak itself and along its margins.

FIRE CONTROL HANDBOOK

(4) FIREBREAKS

Describe the width of the break, the average slope, and steepest grade of 100 yards in length or more. Indicate the type and amount of equipment or personnel needed to maintain break.

(5) POWERLINE RIGHTS-OF-WAY

Describe in much the same manner as for fuelbreaks, above.

(6) HELIPORTS AND HELISPOTS

Record the location, elevation, size, restrictions and hazards. Indicate the number and sizes of helicopters that can be accommodated. For a heliport describe the fuel supplies and other materials that are generally retained at the heliport.

(7) BASE CAMP, SPIKE CAMP AND STAGING AREA SITES

Describe the location, accessibility, estimated capability, communications, water supply, nearby facilities and ownership for each site.

(8) WATER SOURCES

Water sources should be described to include cisterns, drafting points along streams, ponds and reservoirs, improved natural springs, standpipes, etc. Describe the amount of water available by time of season, accessibility, suitability for a hover-fill for helitanks, and instructions for use of domestic water systems.

(9) SAFETY ISLANDS

Document both man-made and natural openings along fuelbreaks, roads, trails, etc. that can provide safety for personnel and equipment from an encroaching wildland fire under critical fire weather conditions.

FIRE CONTROL HANDBOOK

(10) TRACTOR LOADING LOCATIONS

Indicate and describe locations along roads where transports can safely load or unload dozers.

(11) NATURAL BARRIERS

Describe the type of barrier (stream, rock outcropping, lakes, etc.) Describe the general width of the break, if a stream, and the general height or nature of rock outcroppings.

(12) SPECIAL INTEREST AREAS

Delineate "Special Interest Areas" (unique areas of botanical, biological, archeological, geological, or historical interest that should be preserved, if possible.) They may require special consideration as to the location of firelines and the types of tools that can be used to construct those lines.

(13) FUELS AND TOPOGRAPHY

Provide information on special problems of vegetative fuels or topography that can importantly affect fire spread or behavior and the construction of firelines.

(14) FIRE CONTROL LINES




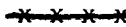


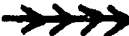











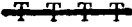

Show the locations of potential fire control lines along ridges or drainages and the estimated time needed to construct these lines by various types and numbers of attack units.

c. BLOCK MAP.

(1) MAP

It is recommended that USGS topographic maps be used for this purpose. Elements of the "Plan" should be shown, using the following legend:

FIRE CONTROL HANDBOOK

	Fuelbreak Proposed
	Fuelbreak Existing
	Dozer Line Proposed
	Dozer Line Existing
	Hand Line Proposed
	Hand Line Existing
	Work Direction if Restricted By Slope or Vegetation
	Barriers
	Helispot Proposed
	Helispot Existing
	Heliport Proposed
	Heliport Existing
	Base Camp
	Spike Camp
	Staging Area
	Water Source
	Trail
	Safety Island
	Truck Trail
	Tractor Loading Location

(2) WRITTEN DESCRIPTION.

The Improvement Inventory should include:

- (a) The name of each improvement using landmarks or a numbering system.
- (b) Pertinent information for each improvement, i.e., width, length, capacity, elevation, etc.

(3) CONSTRUCTION AND MAINTENANCE.

The plan for construction and maintenance should include:

- (a) priorities,
- (b) costs,
- (c) time for completion, and
- (d) goals for each fiscal year.

d. TYPICAL DESCRIPTION OF A FIRE CONTROL LINE.

Steel tower powerline to Bear River
Total Length: About 2,200 feet.

- (1) .1 of a mile of conventional truck trail. Maximum slope 7%. Average slope 5%. Fuel - slash, heavy ground litter, some pine, fir and oak.
- (2) 600 feet of proposed tractor and FWD line. Maximum slope 28%. Average slope 28%. Fuel - heavy ground litter, slash and oak.
- (3) 400 feet of proposed tractor line. Maximum slope 45%. Average slope 45%. Fuel is very heavy fir and ground litter and some oak.

- (4) 600 feet of proposed hand-line. Maximum slope 70%. Fuel - very heavy fir, ground litter and oak.

TRAVEL-- Take the freeway east out of Colfax 5.3 miles to the Secret Town overpass. Cross the overpass and go east on the access road 1.4 miles to *D-41. Turn left and go 1.3 miles bearing to the right all the way to D-39. The locked gate .5 of a mile north of D-41 is a CDF lock. Transports must stop at DBC-2 at Magra and walk tractors in. Road is too narrow for transports.

WATER-DW7, DW8
BASE CAMP--DBC-2
TRACTOR-DT-2
HELICOPTER--DH-1

*Block identification.

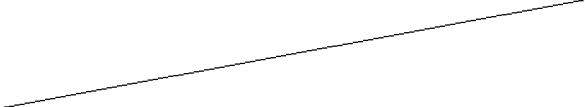
*Note: Each block should be identified by A,B,C, etc.



5609 SUPPORT TEAMS

CHAPTER OUTLINE

	ITEM	PAGE
5609	SUPPORT TEAMS.....	283
.1	GENERAL.....	283
.2	IMPLEMENTATION.....	283
a.	Fire Boss Responsibilities..	283
b.	Ranger Unit Emergency Command Center Responsibilities.....	284
.3	TEAMS.....	285
a.	A-Team.....	285
b.	B-Team.....	286
c.	C-Team.....	287



5609 SUPPORT TEAMS

.1 GENERAL

Support Teams are pre-planned staffing levels for the *Planning, Service and Finance* functions. They relieve the *Fire Boss* of the time-consuming task of ordering *Base Camp* personnel position-by-position, and they enable the *Ranger Unit Emergency Command Center (ECC)* to implement the request in an orderly and efficient manner.

Support Teams have been developed for three levels, identified as Teams A, B, or C. These levels are designed to meet almost any given fire situation in the early planning stages. Each level is designed to get key staff positions enroute to the fire at the earliest possible opportunity to assist the *Fire Boss* in building a *fire organization structure* appropriate for the magnitude of the fire.

The concept is modular; that is, each successive level incorporates each preceding level. This allows the *Fire Boss* to increase or decrease his original order to the next higher or lower level as the fire situation changes. In addition, the *Fire Boss* may "add to" or "decrease" positions from any level based on the requirements of the fire. These *Support Teams* are intended to serve as guidelines for *Ranger Units* to preplan staffing levels.

.2 IMPLEMENTATION

a. FIRE BOSS RESPONSIBILITIES

The *Fire Boss* is responsible for initiating the request for a *Support Team*. He will request the level that most closely fits his expected needs. He must keep in mind that it may be necessary to increase or decrease to the next level or by individual positions at a later time to meet the requirements of the fire situation.

The *Fire Boss* will also specify the *Base*

FIRE CONTROL HANDBOOK

Camp site to be used.

It is not mandatory that the *Fire Boss* use this preplanned system. However, he should be encouraged to do so when any one of the levels will closely fit his expected needs, and since the preplanned system will allow him to devote more time initially to the *Attack* function.

b. RANGER UNIT EMERGENCY COMMAND CENTER RESPONSIBILITIES

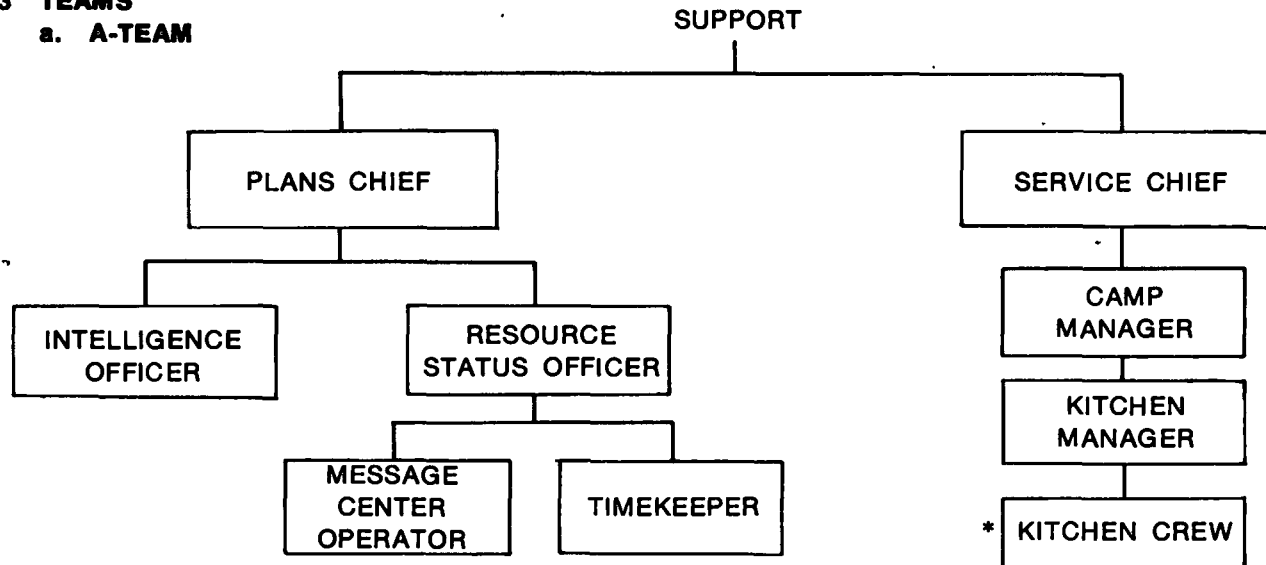
The *Emergency Command center* will fulfill the request to the extent possible from their own Ranger Unit's resources. This is especially true for key positions, i.e., *Plans Chief* and *Service Chief*, since they should arrive at the *Base Camp* very soon to begin managing their respective functions.

The *ECC* will advise the *Fire Boss* of the *ETA* for key personnel and *Base Camp* components.

:

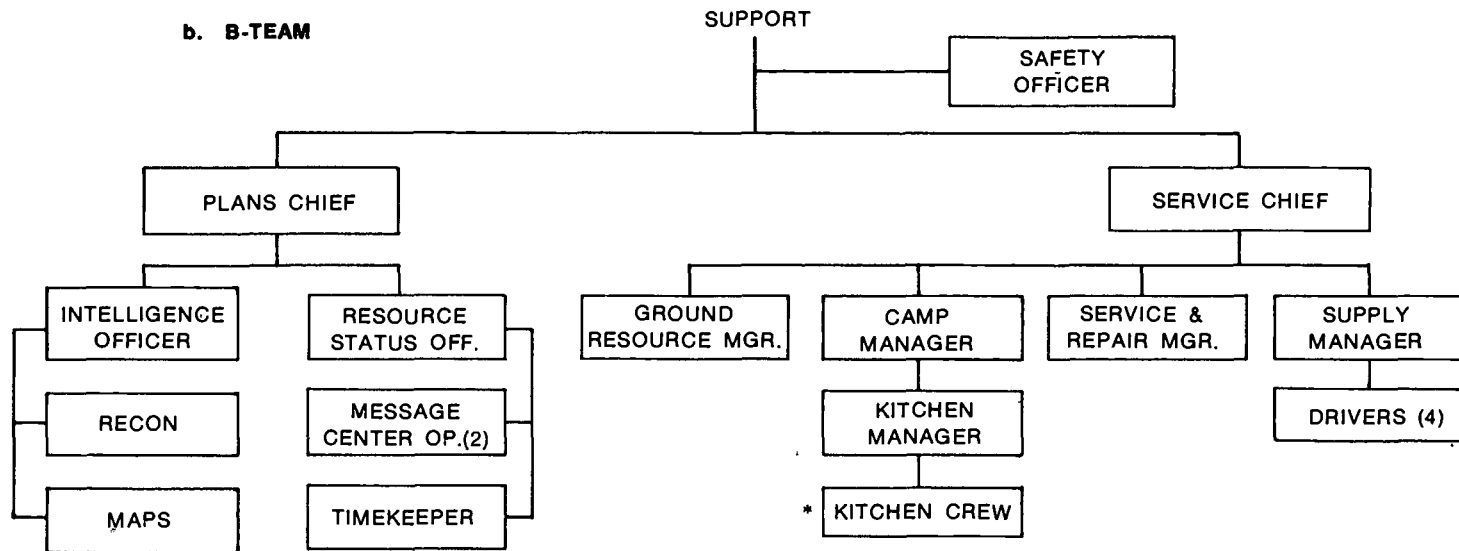
.3 TEAMS

a. A-TEAM



SITUATION: A BASE CAMP FOR TOTAL FIRE MANAGEMENT MAY NOT BE NEEDED ON EXTENDED ATTACK. HOWEVER, DIFFICULT TERRAIN CAUSING LONG TRAVEL TIMES TO AND FROM UNIT HEADQUARTERS, CONSERVATION CAMP CREWS, OR LONG PATROLS, MAY REQUIRE THAT MESS AND SLEEPING CAMPS BE SET UP ON LOCATION.

*Includes a kitchen crew supervisor.

b. B-TEAM

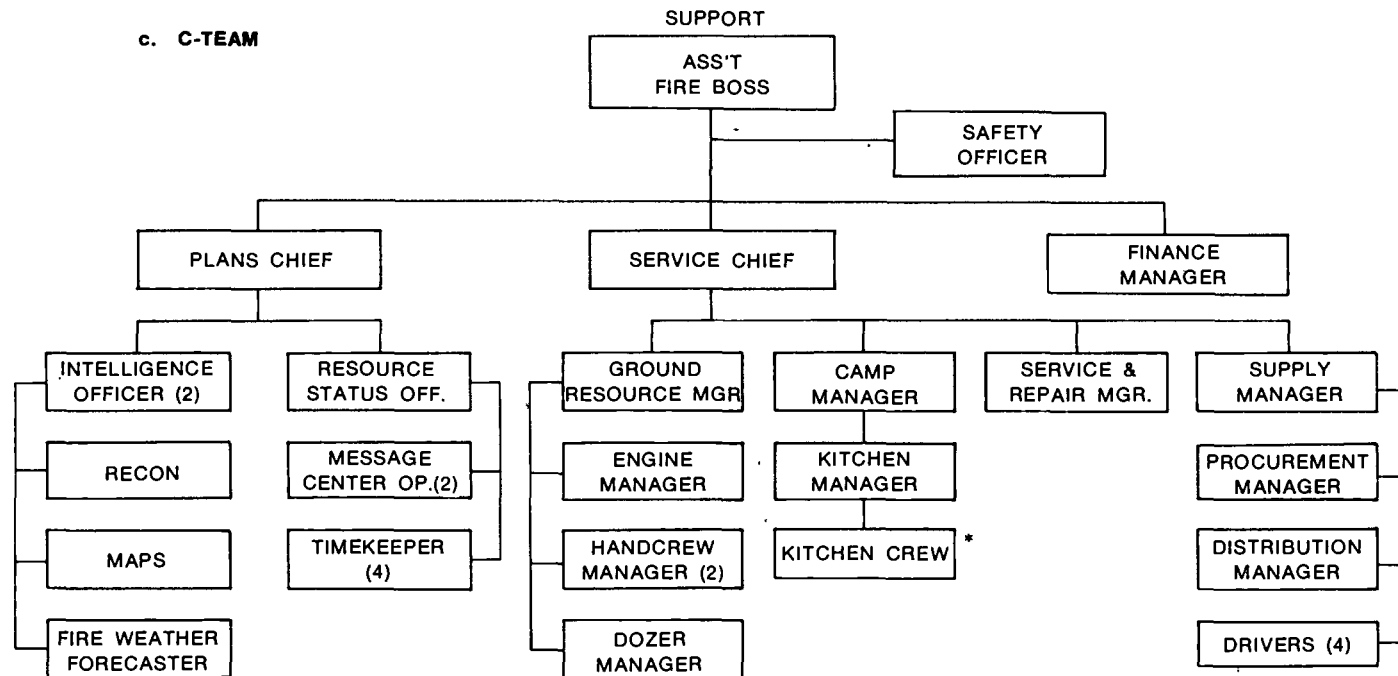
POSITIONS NECESSARY TO INCREASE TEAM "A" TO "B" TEAM

- 1 - SAFETY OFFICER
- 1 - RECON PERSON
- 1 - MAPS PERSON
- 1 - MESSAGE CENTER OPERATOR
- 1 - GROUND RESOURCE MANAGER
- 1 - SERVICE & REPAIR MANAGER
- 1 - SUPPLY MANAGER
- 4 - DRIVERS

*Includes a kitchen crew supervisor.

SITUATION: A BASE CAMP FOR TOTAL FIRE MANAGEMENT WILL BE NEEDED. MANY CONSERVATION CAMP CREW, LONG TRAVEL TIME OR LONG PATROLS WILL REQUIRE THAT MESS AND SLEEPING FACILITIES BE SET UP ON LOCATION.

c. C-TEAM



*Includes a kitchen crew supervisor.

POSITIONS NECESSARY TO INCREASE "B" TEAM TO "C" TEAM

- | | |
|-------------------------------|--------------------------|
| 1 - ASS'T FIRE BOSS (SUPPORT) | 2 - HANDCREW MANAGERS |
| 1 - INTELLIGENCE OFFICER | 1 - DOZER MANAGER |
| 1 - FIRE WEATHER FORECASTER | 1 - FINANCE MANAGER |
| 3 - TIMEKEEPERS | 1 - PROCUREMENT MANAGER |
| 1 - ENGINE MANAGER | 1 - DISTRIBUTION MANAGER |

SITUATION: MAJOR FIRE IN PROGRESS - LARGE NUMBERS OF PERSONNEL AND EQUIPMENT ARE NOW, OR WILL BE, COMMITTED TO THE FIRE. A LARGE SUPPORT ELEMENT WILL BE NECESSARY TO PROVIDE SUPPORT TO THE ATTACK FUNCTION.

FLOOD OPERATIONS

FIRE CONTROL HANDBOOK

5610 FLOOD CONTROL OPERATIONS

CHAPTER OUTLINE

ITEM	PAGE
5610 FLOOD CONTROL OPERATIONS.....	291
.1 GENERAL.....	291
.2 FLOOD OPERATIONS PLAN.....	291
.3 DISPATCH PROCEDURE.....	291
.4 STANDARDIZED MANNING AND EQUIPPING OF HAND CREWS.....	291
.5 EQUIPPING OF OTHER RESOURCES.....	292
.6 RESPONSIBILITIES OF REQUESTING AGENCY.....	293
.7 RESPONSIBILITIES OF EMERGENCY COMMAND CENTER.....	293
.8 WORKING CHANNELS FOR FLOOD ASSISTANCE.....	293
a. DWR-CDF Working Channels for Flood Assistance.....	294
b. Local Responsible Flood Control Agency-CDF Working Channels for Flood Assistance.....	295
.9 RESPONSIBILITIES OF THE FLOOD COORDINATOR-CDF.....	296
.10 REIMBURSEMENT.....	296
.11 MEALS.....	297



5610 FLOOD CONTROL OPERATIONS

.1 GENERAL

CDF personnel will have occasion to participate in flood control emergencies for the Department of Water Resources and other responsible flood control agencies. Water Resources personnel shall designate and generally direct the emergency work project. Coordination between the agencies shall be maintained by the Operations Engineer of Water Resources and the Regional Deputy State Forester having jurisdiction of the work area. .

.2 FLOOD OPERATIONS PLAN

Each Region yearly prepares and updates a Flood Operations Plan containing *Base Camp* or *Staging Area* locations, flood control techniques, Regional guidelines, etc.. It has a limited distribution to Ranger Units and Camps.

.3 DISPATCH PROCEDURE

All requests by the Department of Water Resources for emergency flood fighting assistance from the CDF shall come from the Department of Water Resources Operations Engineer in Sacramento to the Forestry Fire Control Dispatch Office in Sacramento. The Sacramento Dispatcher will then follow the regularly established dispatch channels within the CDF.

All requests from Water Resources shall include the following information:

- a. number of personnel or crews needed,
- b. amount and type of equipment,
- c. where to report,
- d. time of expected arrival and
- e. person to whom crew supervisor will report

.4 STANDARDIZED MANNING AND EQUIPPING OF HAND CREWS

When dispatching hand crews for emergency flood fighting (by request from the Department of Water Resources or responsible flood control agency), the crews are to be equipped and manned as follows:

- a. Two crew leaders per crew.
- b. One Correctional employee per crew when custody hazards are present.
- c. Standard tool complement: all hand tools, shovels, pulaskis, hot cans, flashlights, canteens, axes, rations (2 per person), cross cut saw, wedges, and assorted bars.
- d. Handie-Talkie and batteries.
- e. Normal rain gear.
- f. Inmate personal equipment and travel kits (see Manual of Instructions, Section 4521.2).
- g. Other special equipment (see Manual of Instructions, Section 4521.3).

.5 EQUIPPING OF OTHER RESOURCES

Other equipment along with personnel that may be requested by a flood control agency include transport and dozers, dump trucks, stakesides and 4-wheel drive reconnaissance vehicles.

When such equipment is dispatched, they will be equipped and manned as follows:

- a. Two qualified persons per unit.
- b. Handie-Talkie and batteries.
- c. Normal rain gear.
- d. Normal complement of tools assigned to that vehicle.
- e. Flashlight or headlamps.
- f. Canteen and two rations.
- g. Extra clothing and personal kits to last at least 5 days.

.6 RESPONSIBILITIES OF REQUESTING AGENCY

The requesting agency will be responsible for supplying the following:

- a. Contact man.
- b. Flashlight batteries.
- c. Life preservers.
- d. Boots.
- e. Sand bags.
- f. Rope for life line.
- g. Sledges and files to sharpen small tools.
- h. Special type rain gear and rubber boots.

.7 RESPONSIBILITIES OF EMERGENCY COMMAND CENTER

The sending ECC handling the flood control agency's requests for crews and equipment (Region or Ranger Unit) will assure that a competent Flood Coordinator, CDF (equivalent to "Fire Boss") and an adequate staff commensurate with the amount of crews and equipment requested is assigned to provide proper supervision and efficient logistic control.

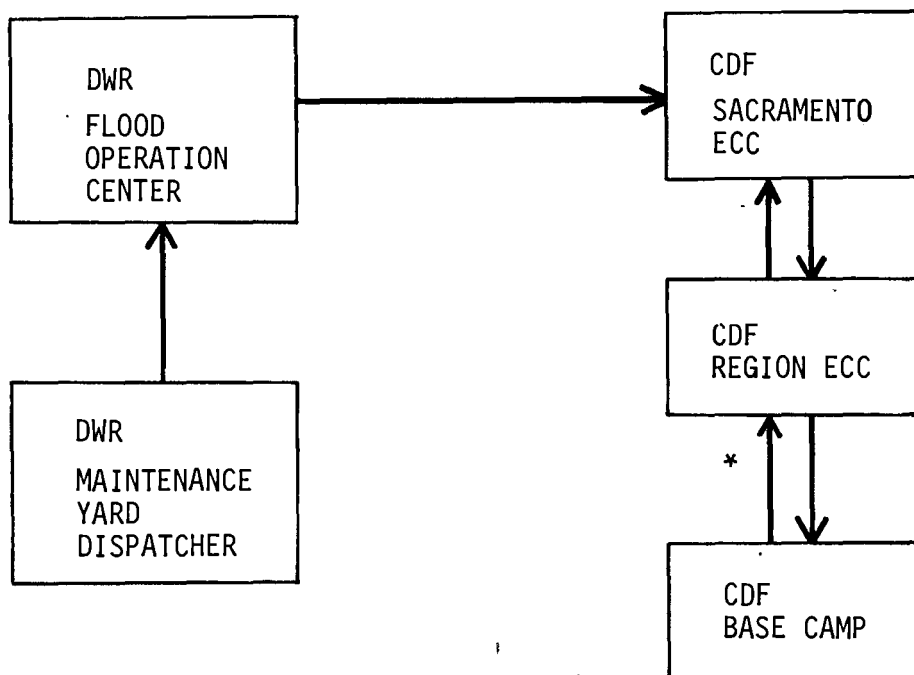
.8 WORKING CHANNELS FOR FLOOD ASSISTANCE

Following are typical working channels for flood assistance to the Department of Water Resources and a local responsible flood control agency. This may be an irrigation district, Army Corps of Engineers, County Emergency Preparedness Office, etc.

a. DWR-CDF WORKING CHANNELS FOR FLOOD ASSISTANCE

By Agreement, the Department of Water Resources will bear the cost of most of the CDF involvement. (See Manual of Instructions, Section 5822.1.3) The CDF will not commit crews or equipment unless specifically requested by DWR. The CDF still retains the responsibility to commit overhead personnel commensurate with the total CDF involvement to provide adequate line supervision and support.

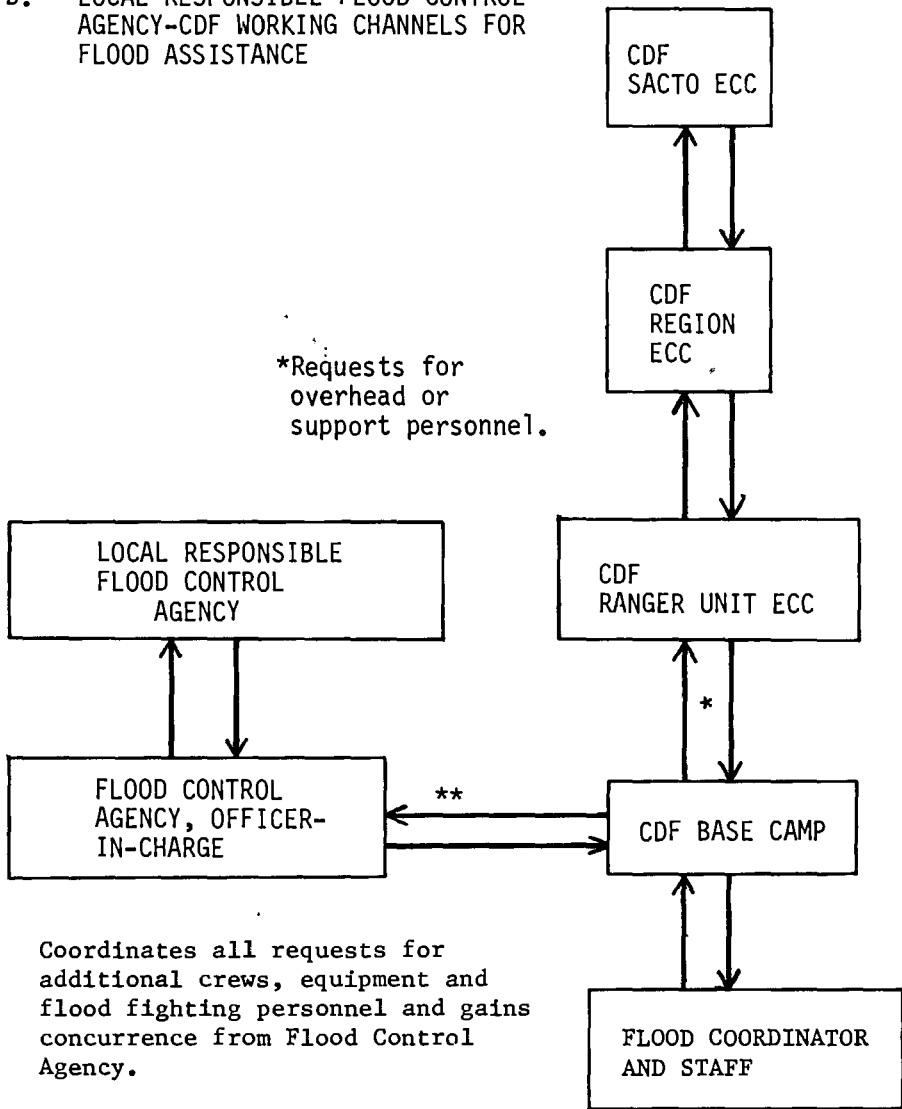
a. DWR-CDF WORKING CHANNELS FOR FLOOD ASSISTANCE



* Requests for overhead support personnel.

By Agreement, the Department of Water Resources will bear the cost of most of the CDF involvement. (See Manual of Instructions, Section 5822.1.3) The CDF will not commit crews or equipment unless specifically requested by DWR. The CDF still retains the responsibility to commit overhead personnel commensurate with the total CDF involvement to provide adequate line supervision and support.

b. LOCAL RESPONSIBLE FLOOD CONTROL
AGENCY-CDF WORKING CHANNELS FOR
FLOOD ASSISTANCE



.9 RESPONSIBILITIES OF THE FLOOD COORDINATOR, CDF

The *Flood Coordinator*, CDF, will assemble a *Base Camp* staff to provide adequate line supervision and support.

- A. He will request personnel to fill as many of the various functions as needed following the outline for a "Major Fire Organization Structure" in Section 5602.5.b.
- B. He will assign a CDF *Liaison Officer* with radio communications to the Flood Control Agency's "Emergency Center" or "Headquarters" with DWR. This will normally be their local maintenance yard. Local agencies may use their main office or set up an emergency center elsewhere.
- C. He will coordinate plans and resource deployment assignments with Officer-in-Charge of flood control agency.

.10 REIMBURSEMENT

The Department of Water Resources shall make reimbursement as follows for requested flood fighting assistance:

- A. for conservation camp crews at a rate established intermittently by mutual agreement. Rates are figured on actual costs of supervision, transportation, tools, etc;
- B. any special expenditures made by the CDF to transport conservation camp crews shall be reimbursed in addition to the above charges;
- C. for salary and wages of additional CDF or Department of Corrections personnel not included in paragraph (a), above, at the appropriate fire cost reimbursement rate for the employee class;

- D. for automotive and auxiliary equipment not included in paragraph (b), above, at the appropriate fire cost reimbursement rate for automotive equipment;
- E. for any tools or equipment supplied by the CDF that are lost or damaged.

.11 MEALS

The Department of Water Resources shall provide meals or reimburse the CDF for all costs incurred in feeding assigned inmate personnel performing work under the mentioned cooperative agreement.

32 3

WEATHER

FIRE CONTROL HANDBOOK

5611 WEATHER SUPPORT FOR PROJECT-TYPE

CHAPTER OUTLINE

ITEM	PAGE
5611. WEATHER SUPPORT FOR PROJECT-TYPE	
FIRES.....	301
.1 GENERAL.....	301
.2 ADVANCE PLANNING.....	301
a. Fire Weather Forecasting	
Service.....	301
b. Fire Danger Considerations.....	302
.3 FINAL PREPARATION PRIOR TO	
BURNING.....	305
.4 WEATHER OBSERVATIONS DURING THE	
BURN.....	306

1977

"C"

5611 WEATHER SUPPORT FOR PROJECT-TYPE FIRES

.1 GENERAL

The truly successful project-type fire is one that accomplishes just what it is intended to - no more and no less. It neither escapes its control lines nor does it leave more unburned fuel within its perimeter than is desired. Whether it accomplishes its goal, or something more or less than this, is due in large part to influences of weather.

In order to ensure that all of the fire weather/fire danger considerations have been met, the following checklist of instructions has been prepared. The Ranger(s)-In-Charge of the Unit(s) in which the fire occurs will be responsible for determining that these instructions are followed by the CDF's prime representative at the fire's site.

.2 ADVANCE PLANNING

a. FIRE WEATHER FORECASTING SERVICE

- (1) When a project-type burn is scheduled, advise the forecaster of the dates. At this time discuss with him the nature of the burn, the fuels, the terrain, what weather conditions are apt to cause problems, etc. Make sure he has the necessary quad sheets. Does he have on-the-ground experience at the site? If not, consider arranging a familiarizing inspection for him. The size and complexity of the burn will determine the need for this.
- (2) Determine whether on-site forecasting service using the

mobile fire weather unit is desirable. Can the forecaster honor this request? If he cannot, due to limitations on his work hours, travel funds or whatever, he will advise. If he can, find out what support he needs and agree on his schedule.

- (3) If mobile service is neither available nor necessary, request special "spot" forecasts as needed. Remember that such requests can be honored at any time. The information needed by the forecaster is outlined on WB Form 653-1 (CDF FC-72) "Fire Weather Special Forecast Request."
- (4) Learn from the forecaster what his needs will be for on-site weather observations - how far in advance, how frequently, etc. Make necessary arrangements for this. Make sure he knows who is to receive his special forecasts.

b. FIRE DANGER CONSIDERATIONS

- (1) Make a preliminary evaluation of the allowable limits of the fire behavior components according to the aim of the burn and the fuels to be burned. Light fuels and good control lines would allow relatively high values of the Spread Component. Heavy fuels might need a high Energy Release Component and low Spread Component to burn all the fuel within the perimeter. This could be a factor in planning the control lines.

FIRE CONTROL HANDBOOK

Consider the Ignition Component carefully. Not only is it a relatively easy entity to keep track of, but it is meaningful in terms of fire behavior. Keep in mind that experience has shown that spotting can be expected above 50. It becomes almost certain above 75 and a major problem above 90. It requires nothing more than a sling psychrometer and a table to calculate. The same procedure is used for all of the fuel models.

To help in associating this component with weather conditions, the following table lists examples of quite ordinary weather conditions that result in a range of Ignition Components:

Temp	Rel. Humidity	Ignition Component
85	18	90
80	22	80
80	25	70
80	30	60
75	40	50
70	45	40

As a further guide, the following combinations of Ignition Component and wind are listed in a table for the purpose of calling attention to conditions that are approaching critical. They are not necessarily to be considered as cutoffs. They apply to all of the fuel models.

Ignition Component	Wind (MPH)
90	5
80	8
70	10
60	13
50	15
40	17
30	19

Another point to consider is the selection of the proper fuel model to fit the fuel to be burned. Large areas have been assigned representative fuel

FIRE CONTROL HANDBOOK

models for other management purposes and these are quite generalized. But small blocks of various fuel models can exist in these large areas.

For example, when burning a patch of brush in a large area that has been designated as primarily Model A, the specifications for Model B would apply to the burn.

(Reference: "National Fire Danger Rating System," USDA Forest Service Research Paper RM-84)

- (2) Decide what point or points would be best for taking representative weather samples at the site. Make sure that whoever will be taking these samples receives the necessary instructions. Arrange for the necessary equipment. It is possible to work out the whole family of components and indexes* with the following:

FUEL MODEL

	A	B	C	D	G
Belt Weather Kit	x	x	x	x	x
Fuel Moisture Sticks	-	x	x	x	x

*Fuel Models B, D, and G, require the expression of 100 hour T/L fuel moisture. Since this is not convenient to compute on-site, it is the one parameter to be arranged for from a nearby installation. Otherwise it could be estimated according to general location and time of season.

- (3) If the fire weather forecaster has instruments or equipment that would help in the data gathering, arrange for their use.

.3 FINAL PREPARATION PRIOR TO BURNING

- (a) The responsible field officer should use his judgment in determining if a weather sampling is necessary for a project-type fire. A weather sampling can provide important documentation if an escape occurs. Personnel are encouraged to obtain a weather sampling when time permits or when circumstances warrant.

The weather sampling should begin at least 48 hours prior to the scheduled daylight hours, or at least until the time of the day that it is expected that the burn will have been terminated.

The purpose of this weather sampling is to accomplish several things. First, it will give an idea of the range of temperature and humidity and perhaps identify the time of maximum temperature and minimum humidity. Second, it will serve to pinpoint the likely times of wind shifts. Third, it will help in estimating the time when the pre-established critical values of weather and/or fire danger components will be reached.

- (b) Relay to the forecaster as much of this observational material as he needs. Make sure that his forecasts for the burn reach the correct users as promptly as possible.
- (c) If critical values of the fire danger components have been set, on-site observations plus the spot forecasts will indicate how

much time is available for carrying out the burn with reasonable assurance that the fire will remain within its intended bounds.

- (d) Continue to monitor fire weather/ fire danger up to the time of the burn so that the time available for relatively safe burning may be adjusted, as necessary.

.4 WEATHER OBSERVATIONS DURING THE BURN

Frequent weather observations will be made and recorded during the burn. These observations have great value for four reasons.

First, there is a need to detect trends and sudden changes -- especially of wind speed -- at key locations around the fire perimeter.

Second, in the event of an escape, weather observations often establish the reason.

Third, this is an opportunity to document rates-of-spread and other fire behavior aspects with the associated weather. This kind of information is badly needed to verify the relationships of the indexes and fire behavior components of the National Fire Danger Rating System to actual fire behavior. It will also help in managing future burn prescriptions.

Fourth, in critiquing the forecast with the forecaster, this information will give him knowledge to apply to future burns.

Index not yet pub. 2/28/79

INDEX

Agency - The Resources Agency of California unless otherwise specified.

agency - Generally used to denote a unit of government such as a State department or fire district which has legal authority to organize and direct a firefighting service or which has responsibility and authority for contracting for fire protection. (Should not be confused with the fire department proper.)

responsible agency - That fire protection agency having actual responsibility for taking fire attack action at the location under consideration; may often be a contractor.

receiving, requesting, sending (agency or unit) - When a fire agency, or service, or unit, or fire department requests physical assistance, or receives, or sends such physical assistance to another, confusion may result in respect to which agency or unit was involved in the receiving and which was involved in the sending. This distinction is important not only during the dispatching of such aid, but also in the consideration of reimbursements and the fire records. These terms were developed to eliminate such possible confusion.

air cargo - All goods and material items transported and delivered entirely by aircraft.

air-ground detection - A fire detection system combining fixed coverage of key areas by ground detectors with aerial patrol.

airtanker - Fixed wing aircraft used by fire control agencies for dropping water or fire retardant chemicals on fires.

alidade - A straightedge equipped with sights; an essential part of a directional device for locating fires.

allowable burned area - The maximum average loss in acreage burned for a given period of years that is considered acceptable under organized fire control for a given area.

anchor point - An advantageous location, usually a barrier to fire spread from which to start constructing fire line. Used to minimize the chance of being flanked by the fire while the line is being constructed. May also refer to a safe ending point for a constructed line.

area control action - See *tactics*.

area ignition - The ignition of a number of individual fires throughout an area either simultaneously or in quick succession, and so spaced that they soon influence and support each other to produce fast, hot spread of fire throughout the area. See *simultaneous ignition*.

area of influence - A delineated area surrounding an airbase which can be reached first by aircraft from the particular base.

arsonist - A person who maliciously or unlawfully ignites a fire in a structure; term commonly used in newspapers in reference to a person unlawfully igniting a fire in vegetation. The latter should be termed an incendiary. However, the word incendiary is used so often among forest firemen that it could probably now be claimed as a proper American word.

aspect - The direction in which the slope of a hill or mountain faces. (also known as *exposure*).

attach a fire - Attempt to limit the spread of a fire by cooling, smothering, or removing or otherwise treating the fuel around its perimeter. See *direct method*, *indirect method*, *parallel method*.

azimuth - Direction from a point, measured in degrees clockwise from true north.

azimuth circle - A circle graduated in degrees of angle in clockwise direction.

back azimuth - Azimuth plus 180°; direction opposite to *azimuth*.

backfire - A fire set along inner edge of a fire control line (i.e. toward a going fire) with the expectation that it will be influenced by the advance of the main fire and thus burn out the intervening flammable vegetation. A tactic usually used only when other fire control methods are judged impractical. (2) (NOT SAME AS BURNING OUT).

banking snags - The act of throwing mineral soil about the base of an unlighted snag to prevent it taking fire.

base, home base - Place of regular assignment of a crew or firetruck, aircraft or employee.

berm - A ridge of dirt or debris slightly above the normal ground surface resulting from line construction. Sometimes created on a slope to stop rolling material.

blind areas - An area behind some sight barrier in which neither the ground nor its vegetation can be seen from a given observation point under favorable light and atmospheric conditions.

blowup - Sudden increase in fire intensity or rate of spread sufficient to preclude direct control or to upset existing control plans. Often accompanied by violent convection; and may have other characteristics of a fire storm.

Board of Review - A board or committee selected to review results of fire control action on a given unit or the specific action taken on a given fire in order to identify reasons for both good and poor action, and to recommend or prescribe ways and means of doing a more effective and efficient job.

broadcast burning - Intentional burning in which fire is intended to spread over all of a specific ground area.

brush - Shrubs and stands of short scrubby tree species that do not reach merchantable size. (Not a synonym for slash or reproduction.)

buildup - An increasing condition as may be applied to specific situations, e.g., weather, fire hazard, organization, etc.

burning block - In control or prescribed burning, an area having sufficiently uniform vegetation stand and fuel conditions to be treated uniformly under a given burning prescription. The size ranges from the smallest that allows an economically acceptable cost per acre up to the largest that can conveniently be treated (physically and safely) in one burning period.

burning conditions - The state of the combined factors of environment that affect fire in a given fuel association.

burning index - A number in an arithmetic scale determined from fuel moisture content, wind speed, and other selected factors that affect burning conditions, and from which the ease of ignition of fires and their probable behavior may be estimated. See *danger index*.

burning index class - A segment of a burning index scale identified by such qualitative terms as low, medium, high, very high, or extreme or by numerals 1, 2, 3, - - - 10.

burning index meter - A device used to determine burning index for different combinations of burning index factors.

burning out - That part of the indirect or parallel method of fire control consisting of removing by fire the unburned fuels inside the fire line.

burning patterns of large fires -

line pattern - A fast moving fire with regular or irregular but well defined perimeter. Possibly some spotting within close proximity to main fire.

spotty pattern - Considerable spotting well ahead of main fire creates a perimeter that is very irregular and difficult to determine. Unusual fire behavior may be expected.

area ignition pattern - Caused by an extremely violent fire caused by many spot fires interacting on each other. slowup conditions usually result.

burning period - A period of time beginning when the fire starts and ending at 10 a.m. on the day following.

calculated probabilities - Evaluation of all existing factors pertinent to probable future behavior of a going fire and of the potential ability of available forces to carry out control operations on a given time schedule.

Campaign Fire (CF) - A serious conflagration type fire extending beyond the first burning period and requiring a fire control General Headquarters (GHQ), more than one fire line management base of operations, and zone area management.

catface - A defect on the surface of a tree resulting from a wound in which healing has not re-established the normal cross section. See *fire scar*.

CDF, Division, State - Generally refer to the California Division of Forestry.

CDC - California Department of Corrections.

CDO - California Disaster Office.

center firing - A technique of broadcast burning in which fires are set in the center of the area to create a strong indraft. Additional fires are then set progressively nearer the outer control lines as indraft builds up to draw them in toward the center. See *simultaneous ignition* and *area ignition*.

Class of fire (as to kind of fire) -

Class A. Fire in solid fuels, including forest fires.

Class B. Fire in flammable liquids.

Class C. Fire in electrical equipment.

Class of fire (as to size of forest fire) -

Class A. .25 acre or less

Class B. .26 acre through 10 acres

Class C. 10.1 through 100 acres

Class D. 100.1 through 300 acres

Class E. 300.1 through 1000 acres

Class F. 1000.1 through 5000 acres

Class G. More than 5000 acres.

clean burning - Same as *burning out*.

closed area - An area in which specified activities or entry are temporarily restricted to reduce risk of man-caused fires.

closure - Legal restriction (but not necessarily complete elimination) of specified activities such as smoking, camping, or entry in order to prevent fires in a given area.

cold front - The leading edge of a relatively cold air mass which displaces warmer air.

cold trailing - A method of controlling a partly dead fire edge by carefully inspecting and feeling with the hand to detect any fire digging out every live spot, and trenching any live edge.

Command - The direction of the fire control operation. The Command Function (headed by the Fire Boss) is responsible for developing fire strategy and putting it into effect in the most satisfactory manner.

condition of vegetation - Stage of growth, or degree of flammability of vegetation that forms part of a fuel complex. "Herbaceous stage" is at times used when referring to herbaceous vegetation alone. In grass areas minimum qualitative distinctions for stages of annual growth are usually termed green, curing, and dry or cured.

conduction - Transfer of heat energy from particle to particle of matter by contact and through a conducting medium.

conflagration - A raging, destructive fire. Fast moving fire fronts over large areas. Requires Campaign Fire organization for control.

contained fire - There is a line completely around the fire and any spot fires therefrom, and there is a good chance that these lines can be held through the next burning period.

Contract County - A county which offers direct protection to State Responsibility Land as an agent of the State Forester under conditions prescribed in a contract of reimbursement for such service.

controlled fire - A fire in which the perimeter spread of a wildfire has been halted by natural or man-made barriers and has remained under control throughout the first succeeding burning period.

control force - Organization of personnel and equipment used to control the fire.

control line - An inclusive term for all constructed or natural fire barriers and treated fire edge used to control a fire's spread.

control time - See *elapsed time*.

convection - Refers to the thermally induced, vertical motion of air.

convection column - The ascending column of gases, smoke and debris produced by the combustion process of a fire.

contour line - A continuing line on a topographic map connecting points of equal elevation, generally indicating vertical distance above sea level.

cover type - The dominant form of vegetation growing upon a given land area; generally given same common group name as dominant genera, such as grass, sage, chaparral, woodland, coniferous, or may be more specific, such as chamise-manzanita, pine - fir, etc.

cross shot - Intersecting lines of sight from two points to the same object. Frequently used to determine the location of a fire from lookouts.

crown fire - A fire that advances from top to top of trees or shrubs more or less independently of the surface fire. Sometimes crown fires are classed as either running or dependent, to distinguish the degree of independence from the surface fire.

crown out - Fire burning principally as a surface fire that intermittently runs into the crowns of trees or shrubs as it advances.

crowning - Fire advancing from crown to crown of trees or shrubs.

cumulus buildup - Cumulus clouds which are in the process of developing to great heights but have not yet reached the thunderstorm stage. Tops still have a rounded cauliflower like appearance and have not spread out into an anvil shape. (See *thunderhead*).

danger index - A relative number indicating the severity of forest fire danger as determined from burning conditions and other variable factors of fire danger. See *burning index*.

debris burning fire - A fire spreading from any fire originally set for the purpose of clearing land or for rubbish, garbage, range, stubble, or meadow burning and by burning out animals, insects, or reptiles, and for fires caused by hot ashes, dumps or incinerators. Includes Range Improvement escapes.

detection - The act or system of discovering and locating fires.

direct method - A method of suppression that treats the fire as a whole, or all its burning edge, by wetting, cooling, smothering, or chemically quenching the fire or by mechanically separating the fire from unburned fuel.

direct protection (action or responsibility) - A term which indicates the particular fire protection organization which has primary responsibility for attacking an uncontrolled fire and for directing the suppression action. Such responsibility may develop through law, contract, or personal interest of the fire fighting agent (e.g. a lumber operator). Several agencies or entities may have some basic responsibility (e.g. private owner) without being known as the fire organization having direct protection responsibility.

discovery - Determination that a fire exists. In contrast to detection, location of a fire is not required.

discovery time - See *elapsed time*.

District - An administrative area supervised by a District Deputy State Forester

division - A division is a designated area or distance of fire perimeter, usually determined by a combination of topographical features and fire control problems whereon the work can be generally supervised on the ground by the Division Boss within a period of two hours.

Division - The Division of Forestry of the Department of Conservation. Sometimes the word represents the headquarters command represented by the State Forester.

dozer line - Fire line constructed by a bulldozer. Same as cat line.

drift smoke - Smoke that has drifted from its point of origin and has lost any original billow form.

dry lightning storm - A lightning storm with negligible precipitation reaching the ground.

duff - The partly decomposed organic material of the forest floor beneath the litter of freshly fallen twigs, needles and leaves. (See *litter*.)

eddy - A large or small whirl of air situated in the main current.

edge firing - A technique of firing in which fires are set along the inside edges of a fire line.

elapsed time - Term indicating total time used to complete any given step or steps in fire suppression. The basic steps are listed chronologically below:

discovery time - Elapsed time from start of fire (known or estimated) until the time of the first discovery that results directly in suppression action.

report time - Elapsed time from discovery of a fire until the first man who does effective work on the fire is notified of its existence and location.

getaway time - Elapsed time from report of a fire to the man who does first effective work on it until he starts to it.

travel time - Elapsed time from beginning of actual travel by the first man doing effective work on a fire until he begins work on the fire.

control time - Elapsed time from first work on a fire until holding the control line is assured.

mop-up time - Elapsed time from time of control until the end of organized mop-up.

patrol time - Elapsed time from completion of organized mop-up until a fire is declared out.

envelopment action - See *tactics*.

ETA - Estimated time of arrival.

Extended Attack Fire (EAF) - A fire on which the first attack forces must be substantially augmented, by additional numbers of men and equipment but is controlled during the first burning period. Usually involves two divisions of fire line perimeter.

extra burning period - For any particular fire which is neither contained nor controlled, any 24-hour period following the termination of the first burning period.

extra period fire - A fire not contained by 10 a.m. of the day following discovery of the fire.

exposure - (See *aspect*).

Facilitating Agents - The working persons and groups, away from the fire area who aid the fire control effort by providing some special services within their own authority. Included would be civil officials, police, lookout observers, Dispatchers.

false alarm - A reported smoke or fire requiring no suppression action, e.g., permit burning under control, mill smoke, false smoke (dust, fog, etc.)

feeling for fire - Examining burned material after fire is apparently out with bare hands to find any live coals.

fingers of a fire - The long narrow tongues of a fire projecting from the main body.

fire agency - An agency compelled and authorized under statutes of law, the responsibility for control of fire within a designated area or upon certain designated lands.

fire behavior - The manner in which fuel ignites, flame develops, and fire spreads and exhibits other phenomena.

firebreak - A strip of land on which the vegetation is removed each season down to mineral soil for fire control purposes.

fire camp - Base of operations set up to facilitate logistics of fire control action and accommodate fire control forces while suppressing fires. Normally set up close to the immediate fire area.

fire control - Embraces all effort taken to abate an existing fire nuisance, beginning at the time of discovery of the fire and ending with its complete extinguishment (including patrol of a "contained" fire area)

fire control action plan - A plan of action based on the fire danger for the area. A plan for prompt dispatch of fire control forces judged necessary to cope with a fire strategy-situation predicted for the particular area.

fire control equipment - All tools, machinery, special devices and vehicles used in fire suppression operations.

fire control organization - Includes those established crews, fire suppression leaders, fire-trucks, lookout stations and other facilities which are obtained before or after the start of a fire essentially for the purpose of detecting, attacking and fighting fires.

fire control planning - The systematic technological and administrative management process of designing the organization, facilities, and procedures to protect wildland from unwanted fire.

fire cooperator - A local person or agency who has agreed in advance to perform specified fire control services and who has received advanced training or instructions in giving such service. Also called "cooperator" or "planned cooperator".

fire damage - The loss, expressed in money or other units, caused by fire. Includes all indirect losses such as reduction in future values produced by the forest area, as well as direct losses of cover, improvement, wildlife, etc., killed or consumed by fire.

fire danger - Resultant of both constant and variable fire danger factors, which affect the inception, spread and difficulty of control of fires and the damage they cause.

fire danger rating - A fire control management system that integrates the effects of selected fire danger factors into one or more qualitative or numerical indices of current protection needs.

fire department - An entire organization established to engage directly in fire protection and fire control work. May be constituted of organized volunteers; associations; private industry organized crews; the forces of cities, fire districts, and counties, but rarely is the term used in regard to wildland organizations maintained by a State or the Federal government primarily for forest fire control. (See agency).

fire edge - The exterior boundary of a fire at a given moment.

fire effects - Any consequence--neutral, detrimental, or beneficial--resulting from fire.

fire front - That part of the edge of the fire on which the rate of spread is usually most pronounced.

fire line - The part of a control line that is scraped or dug to mineral soil. Sometimes called fire trail. (See control line).

fire perimeter - The active burning edge of a fire or its exterior burned limits.

fire protection - Embraces the two major phases of work involved with the prevention and the reduction of damage caused by uncontrolled fire; fire prevention and fire control.

fire prevention - Involves all manner of effort to prevent the ignition and initial spread of an unwanted fire, including the escape of a useful or controlled fire into an uncontrolled and hazardous state which then requires abatement action. Law enforcement, including investigation of fire causes and the apprehension and prosecution of violators is considered to be a fire prevention activity.

fire retardant - Any substance that by chemical or physical action reduces flammability of combustibles.

fire scar - (1) A healing or healed injury or wound, caused or accentuated by fire, on a woody plant. See catface, (2) The scar made on a landscape by fire.

fire season - The period or periods of the year during which fires are likely to occur, spread, and do sufficient damage to warrant organized fire control.

fire service - A term used to denote all types of fire control organizations which take direct action to extinguish fires. (See agency. See fire control organization).

fire status board - Used on Major or Campaign Fires. A visual aid, the nature of a chalkboard, placed at a convenient location in fire camp for review by fire line overhead. Maintained and kept current by the Plans Section. Contains pertinent information regarding fire organization and activities.

fire status map - A map maintained on a fire to show at given times, the location of the fire, deployment of suppression forces, and progress of suppression.

fire storm - Violent convection caused by a large continuous area of intense fire. Often characterized by destructively violent surface indrafts near and beyond the perimeter, and sometimes by tornado-like whirls.

fire strategy-situation - The total fire problem together with the action required to control it. The four Fire Strategy-Situations are: Initial Attack, Extended Attack, Major and Campaign.

fire weather forecast - A weather prediction specifically prepared for use in forest fire control.

fire whirl - (See *whirlwind*).

firing out - (See *burning out*).

first attack - The first organized suppression work on a fire.

first attack team - The first fire control forces dispatched to a fire (supported by Look-out and Dispatcher).

first-work period - The time between discovery of a fire and 10 a.m. of the following calendar day. Also called initial shift. Succeeding work periods are 24 hours beginning at 10 a.m.

flammability - The relative ease or difficulty with which fuels ignite and burn regardless of the quantity of the fuels. (preferred to "inflammability".)

flanking action - (See *tactics*).

flanks of a fire - The parts of a fire's perimeter that are roughly parallel to the main direction of spread.

flareup - Any sudden acceleration of fire spread or intensification of the fire. Unlike blowup a flareup is of relatively short duration and does not radically change existing control plans.

flash fuels - Fuels such as grass, leaves, draped pine needles, fern, tree moss, and some kinds of slash which ignite readily and are consumed rapidly when dry. Also called fine fuels.

foehn - A dry wind with strong downward component. Locally called santana, north, mono, chinook.

follow-up - The action of reinforcing the first man, or men, who go to a fire by sending additional men or equipment to facilitate suppression. Sometimes called reinforcement.

forest fire - (legal definition). As defined in the Public Resources Code: A fire burning uncontrolled on lands covered wholly or in part by timber, brush, grass, grain, or other inflammable vegetation.

forest fire - (statistical definition). Any fire which meets the legal definition for a forest fire (see above) and which is also reportable as a forest fire under existing instructions.

fuel moisture content - The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212°F.

fuel type - An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of fire spread or difficulty of control under specified weather conditions.

fuelbreak - A wide strip or block of land on which the vegetation has been permanently modified to a low volume fuel type so that fires burning into it can be more readily controlled.

General Headquarters (GHQ) - A base of operations on a Major or Campaign Fire. Fire management structure consisting of key persons selected and assigned to represent the interests of each agency involved in complicated fire control problems.

getaway time - (See *elapsed time*).

going fire - A current fire during the period between time of start and its being declared out.

G.P.M. - Gallons (of water) per minute.

ground fire - Fire that consumes the organic material beneath the surface litter of the forest floor, e.g., a peat fire.

gradient wind - A free flowing prevailing wind moving at an elevation (2000 feet and more above the surface) where it is not influenced by topography.

hazard - A fuel complex defined by kind, arrangement, volume, condition, and location that forms a special threat of ignition or of suppression difficulty.

hazard reduction - Any treatment of a hazard that reduces the threat of ignition and spread of fire.

head of a fire - The most rapidly spreading portion of a fire's perimeter, usually to the leeward or upslope. See also *parts of a fire*.

heat transfer - The process by which heat is imparted from one body to another. (See *conduction, convection, radiation*).

heavy fuels - Fuels of large diameter such as snags, logs, and large limewood, which ignite and are consumed more slowly than flash fuels. Also called coarse fuels.

held line - All worked control line that still contains the fire when mop-up is completed. Excludes lost line, natural barriers not backfired, and unused secondary lines.

heliport - A permanent or semi-permanent base of operations for helicopters.

helispot - A temporary landing spot for helicopters normally constructed on or near fire line for access of men and supplies.

helitack crew - A crew of specialists trained to work with helicopters in fire control who are familiar with helicopter fire control accessories and fire control helitack methods.

helitank - The tank attached to the helicopter containing water or fire retardant chemicals for dropping on fires.

helitanker - Helicopter with tanks attached for dropping water or fire retardant chemicals on fires.

holdover fire - A fire that remains dormant for a considerable time. Also called hangover or sleeper fire.

hose-lay - The arrangement of connected lengths of fire hose and accessories on the ground beginning at the first pumping unit and ending at the point of water delivery. See *progressive hose-lay, simple hose-lay*.

hot food dispensers - A mobile, compact steam table designed for feeding personnel on fires. Normally adequate for Initial or Extended Attack Fire organizations. Used as auxiliary and supplemental on Major or Campaign Fires.

hotspot - A particularly active part of a fire.

hotspotting - Checking the spread of a fire at points of more rapid spread or special threat. It is usually the initial step in prompt control with emphasis on first priorities.

incendiary fire - A fire willfully set by anyone to burn vegetation or property not owned or controlled by him and without consent of the owner or his agent.

independent action - Suppression action by other than the regular fire control organization or cooperators.

indirect attack - See *indirect method* and *parallel method*.

indirect method - A method of suppression in which the control line is located along natural fire-breaks, favorable breaks in topography, or at considerable distance from the fire and the intervening fuel is burned out. (see *burning out*) The strip of fuel to be burned out is wider than in the parallel method and usually allows a choice of the time when the burning out will be done.

Initial Attack Fire Boss - The Fire Boss at the time that the first attack forces commence suppression work on the fire.

Initial Attack Fire (IAF) - A fire that is controlled by the first dispatched forces without need for major reinforcements and within the first burning period. Involves one division of fire line perimeter.

initial shift - See *first-work period*.

instability - A condition of the atmosphere in which the lapse rate is such that a parcel of air given an initial vertical impulse will tend to move from its original level with increasing speed.

inversion - A layer of comparatively warm air overlying cool air. This is a stable atmospheric condition. The atmosphere in an inversion will resist vertical motion.

knock down - To reduce flame or heat on the more vigorously burning parts of a fire edge.

lapse rate - The rate of change of temperature in the atmosphere with height.

liaison - (from the French "to tie together"; has several accepted pronunciations, generally "lee-ay-zon" or "lay-ee-zon") - to maintain intercommunication and mutual understanding; on Campaign fires a designated liaison official generally acts as an assistant to the Fire Boss or Assistant Fire Boss in assuring the efficient use of some particular group of men or type of equipment not part of regular Division forces.

light burning - Periodic broadcast burning intended to prevent accumulation of fuels in quantities that would cause excessive damage or difficult suppression in the event of accidental fire.

lightning fire - A fire caused directly or indirectly by lightning.

litter - The top layer of the forest floor, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles, little altered in structure by decomposition. (See *duff*.)

local winds - Winds peculiar to a particular place.

lookout - (1) A person designated to detect and report fires from a vantage point. (2) A lookout station.

lookout tower - A structure to enable a person to be above nearby obstructions to sight. It is usually capped by either a lookout house or observatory.

Major Fire (MF) - A fire that burns into the second burning period and requires extensive control forces. At least one fire camp is established.

marine air - Air which has high moisture content and the temperature characteristics of a water surface due to extensive exposure to that surface.

mop-up - The act of making a fire safe after it is controlled, such as extinguishing or removing burning material along or near the control line, felling snags, trenching logs to prevent rolling, etc.

mop-up time - See *elapsed time*.

motorized firebreak - A low quality roadway along ridges.

move-up - A prearranged system of moving men and equipment in order to have such forces more strategically available for dispatch throughout an area which has been weakened by the earlier dispatch of regular assigned forces.

mutual aid - Some form of direct assistance from one fire service to another during a time of fire emergency. In order to be "mutual" such assistance should follow as a result of an arrangement prior to the need between the agencies involved in which it has been agreed that firefighting assistance will be rendered from each to the other, generally upon the request of the receiving agency.

net fire effects - The sum of all effects, both detrimental and beneficial, resulting from burning.

normal fire season - (1) A season in which weather, fire danger, and number and distribution of fires are about average. (2) Period of the year that normally comprises the fire season.

one-lick method - See *progressive method*.

overhead - Supervisory or specialist personnel working in some capacity related to the control of a going fire (or fires) but not including leaders of regularly organized crews and equipment drivers or operators while engaged in their regularly assigned duties.

para-cargo - Anything intentionally dropped or intended for dropping for any aircraft by parachute, other retarding devices, or free fall.

parallel method - A method of suppression in which fire line is constructed approximately parallel to and just far enough from the fire edge to enable men and equipment to work effectively, though the line may be shortened by cutting across unburned fingers. The intervening strip of unburned fuel is normally burned out as the control line proceeds but may be allowed to burn out unassisted where this occurs without undue delay or threat to the line.

parts of a fire - On typical free-burning fires the spread is uneven, with the main spread moving with the wind or upslope. The most rapidly moving portion is designated the head of the fire, the adjoining portions of the perimeter at right angles to the head are known as the flanks, and the slowest moving portions known as the rear.

patrol - Effort directed toward permanently assuring that there be no escape of a controlled fire; includes activity after the fire is declared to be controlled in mopping-up around the fire line and such close visual watch of the line as is deemed necessary.

patrol time - See *elapsed time*.

Planned Initial Attack Zone - An area surrounding an aircraft base of 15 minute flight radius from the base, estimated for the average speed of the particular types of aircraft from the time of takeoff.

planned components - Those components of the Command, Suppression and Support categories as judged necessary to cope with a specific fire strategy-situation. Applies normally to Major and Campaign fire organization.

point of attack - That part of the fire on which work is started when suppression forces arrive.

preparedness - (1) Condition or degree of being completely ready to cope with a potential fire situation. (2) Mental readiness to recognize changes in fire danger and act promptly when action is appropriate.

progressive hose-lay - A hose-lay in which double shutoff Y's or T's are inserted in the main line at intervals and lateral lines are run along the fire edge, thus permitting continuous application of water during extension of the lay.

progressive method of line construction - A system or organizing men to build fire line in which they advance without changing relative positions in line. There are two principal methods of applying the system: (1) Work is begun with a suitable space, such as 15 feet, between men. Whenever one crewman overtakes another, all of those ahead move one space forward and resume work on the uncompleted part of the line. The last man does not move ahead until the work is complete in his space. Forward progress of the crew is coordinated by a crew leader. This method of organization is termed moveup. (2) Each man does one to several licks or strokes of work and moves forward a specified distance. The distance is determined by the number of men equipped with a given tool and the number of licks needed per unit of line to complete the work for that tool. This method is termed one-lick.

protection boundary - The exterior boundary of an area within which a given agency has assumed primary fire attack responsibility. (Any variation from this definition should be based upon a written understanding among all parties directly involved in the protection of the particular land area).

radiation - The transfer of energy (heat) through space.

Ranger Unit - (In terms of fire protection). The administrative area supervised by a State Forest Ranger, usually embracing the land of a county, excepting National Forests, National Parks, and incorporated cities.

rate of spread - The relative activity of a fire in extending its horizontal dimensions. It is expressed as rate of increase of the total perimeter of the fire, as rate of forward spread of the fire front, or as rate of increase in area, depending on the intended use of the information. Usually it is expressed in chains per hour or acres per hour for a specific period of the fire's history.

rear of a fire - The portion of the edge of a fire opposite the head.

reburn - (1) Subsequent burning of an area in which fire has previously burned but has left flammable fuel that ignites when burning conditions are more favorable. (2) An area that has returned.

regular forces - All of the manpower of the Division payroll other than paid pick-up labor, and all of the equipment, materials or supplies under custody of the Division. The term distinguishes and sets apart other forces that may be acquired temporarily to assist in fire control work, such as prisoners, wards, volunteers, rented equipment and mutual aid assistance. The latter segregation may be referred to as temporary or extra forces.

relative humidity - The ratio of the amount of moisture in a given volume of space to the amount that volume would contain if it were saturated. The ratio of the actual vapor pressure to the saturated vapor pressure.

report time - See *elapsed time*.

resistance to control - The relative difficulty of constructing and holding a control line as affected by resistance to line construction and by fire behavior. Also called difficulty of control. [See *resistance to line construction*.]

resistance to line construction - The relative difficulty of constructing control line as determined by the fuel, topography, and soil. [See *resistance to control*.]

responsible fire agency - The agency assuming attack responsibility for the control of fires upon any particular land area.

risk - (1) The chance of a fire starting as determined by the presence and activity of causative agents. (2) Causative agents. (3) To expose to loss or injury--calculated risk.

running - Behavior of a fire spreading rapidly with a well-defined head. [See *smoldering*, *spotting*.]

safety island - An area used for escape in the event the line is outflanked or in case a spot fire causes fuels outside the control line to render the line unsafe. In firing operations crews progress so as to maintain a safety island close at hand by allowing the fuels inside the control line to be consumed before going ahead.

scratch lines - An unfinished preliminary control line hastily established or constructed as an emergency measure to check the spread of a fire.

sector - A sector is a designated unit of a division of fire area or perimeter whereon the work is supervised by one Sector Boss.

set + (noun) (1) An individual incendiary fire. (2) The point or points or origin of an incendiary fire. (3) Material left to ignite an incendiary fire at a later time. (verb) To ignite a fire.

severity index - A number that indicates the relative net cumulated effects of daily fire danger on the fire load for an area during a selected period, such as a fire season.

simple hose-lay - A hose-lay consisting of consecutively coupled lengths of hose without laterals. (See progressive hose-lay).

simultaneous ignition - A technique of broadcast burning or backfiring by which the fuel on an area to be burned is ignited at many points simultaneously and the sets are so spaced that each received timely stimulation by radiation from the adjoining sets. By such techniques, all burn together quickly and a hot, clean burn is possible under unfavorable burning conditions where single sets would not spread. (See area ignition).

size-up - The observation and evaluation of existing factors which, as affected by assumed future conditions, will affect all or any of the problems involved in the control of a fire. To estimate the needed actions and facilities required to extinguish a fire.

slash - Debris left after logging, pruning, thinning, or brush cutting. It includes logs, chunks, bark, branches, stumps, and broken understory trees or brush.

sleeper fire - A fire that remains dormant for a considerable time. Also called hangover or hold-over fire.

slopover - The extension of a fire on the ground over a crest and generally downslope beyond a line where it was intended or expected the fire would cease. Such a movement of continuous burning over a barrier in a generally upslope direction would be more properly considered an "escape".

smoldering - Behavior of a fire burning without flame and barely spreading.

snag - A standing dead tree or part of a dead tree from which at least the leaves and smaller branches have fallen. Often called stub, if less than 20 feet tall.

span of control - The maximum number of subordinates who can be directly supervised by one person without loss of efficiency. In fire suppression the number varies by activity.

special manning pattern A - All state fire trucks and fire control bulldozers are manned 24 hours per day. All Conservation Camp and Ecology Corps crews are available for dispatch 24 hours per day. Required Fire Crew Foreman, over and above those needed at the camp for normal nighttime manning, may be either on call or on standby, at District option. All personnel not needed for this level of manning may take only normal time off. (Under this SPECIAL MANNING PATTERN it is intended that no personnel will be recalled from vacation or prevented from taking previously scheduled vacation.)

special manning pattern B - All state fire trucks, fire control bulldozers, and camp dozers with transports are manned 24 hours per day. All Conservation Camp and Ecology Corps crews are available for immediate dispatch 24 hours per day. All on duty Schedule B Ranger Unit fire control personnel, including Air Attack and Helitack Base personnel, are held on duty. All personnel not involved in this level of manning may take only normal time off. (Under this SPECIAL MANNING PATTERN it is intended that no personnel will be recalled from vacation or prevented from taking previously scheduled vacation.)

special manning pattern C - All fire trucks, fire control bulldozers, and camp bulldozers with transports are manned 24 hours per day. All Conservation Camp and Ecology Corps crews are available for immediate dispatch 24 hours per day. All Schedule B personnel subject to fire control assignment are held on duty or on call, and all off duty personnel are recalled to duty or on call status. (Under this SPECIAL MANNING PATTERN it is intended that no personnel will be recalled from vacation or prevented from taking previously scheduled vacation.)

speed of attack - The sum total of lapse time off report time, getaway time, and travel time. (See also elapsed time).

spot fire - A fire which is caused by the transfer of burning material through the air into flammable material beyond the perimeter of the fire of origin.

stable air - Air in which vertical currents are resisted due to buoyancy characteristics.

State Fire Disaster Plan - A statewide fire disaster plan prepared and maintained by the California Disaster Office in cooperation with the numerous fire service organizations throughout California.

spotting - Behavior of a fire producing sparks or embers that are carried by the wind and start new fires beyond the zone of direct ignition by the main fire.

spread index - A number related to the relative rate of forward movement of surface fires.

standby crew - A group of men especially organized, trained, and placed for quick suppression work on fires.

strength of attack - The number of men and machines with which a fire is attacked. Normally based on the predicted fire strategy-situation.

Support function - The Support function provides all of the supplies, service and facilities to men and machines of the Command and Suppression functions.

suppress a fire - Extinguish a fire or confine the area it burns within fixed boundaries.

suppressant - Water or chemical solution which is applied directly to burning fuel. Intended to extinguish rather than retard.

Suppression function - The Suppression function include all activities of manpower and equipment directly engaged in controlling the fire perimeter.

surface fire - Fire that burns surface litter, other loose debris of the forest floor, and small vegetation.

suppression crew - Two or more men assigned primarily to work as a unit and located at some strategic place so that they (the crew) may be dispatched to perform work of early attack and abatement of fires.

strip-burning - (1) Setting fire to a narrow strip of fuel adjacent to a control line and then burning successively wider inside as the preceding strip burns out. (2) Burning only a narrow strip or strips of slash through a cutting unit and leaving the remainder.

tactics of attack - The details of action (strategy embraces the broad application of plans and action to a problem). Several types of tactics of attack are listed below.

pincer action - Direct attack around a fire in opposite directions by two or more work units.

tandem action - Direct attack along a part of the fire perimeter by firetrucks, bulldozers, and crews, one following another.

envelopment action - Striking key or critical segments around the entire fire perimeter at approximately the same time.

protective action - Concentrations of protection of separate flammable property within the broad fire area.

confining action - A concentrated attack on a key or critical portion of the fire for the purpose of confining the spread in that area.

flanking action - An attack made along the flanks of a fire when an attack on the head of the fire is not feasible.

area control action - An indirect attack in which fire intensity and difficult topography made it necessary to establish control lines that encompass a natural area well in advance of the fire perimeter.

thunderhead - A popular term for the anvil of a cumulonimbus cloud, but frequently applied to the entire cumulus cloud which has developed anvil top or ice crystal stage. Lightning and precipitation are usually occurring at this stage.

tie-in - Connecting a control line to another line or an intended fire control barrier.

topography - The land surface configuration including man made and natural features.

trench - A ditch dug on a slope below a fire, designed to catch rolling burning material.

truck-trail - A substantial transportation route for fire type motor vehicles, built prior to a fire.

turbulence - Irregular air motion; for example, such as that produced when air flows over the uneven surface of the earth. It gives rise to gusts and lulls in the wind. (See eddy).

uncontrolled - The condition of a fire or part of a fire that has not been checked by natural barriers or by control measures.

undercut line - A fire line below a fire on a slope. Normally requires trenching. (See trench). Also called **underslung line**.

unstable air - Air in which vertical currents when started, will continue and become intensified. (See stable air). Evidenced by cumulus clouds, gusty winds, dust devils and fire whirl winds.

watershed - An area, the soil, topography, and vegetation of which contributes to the retention and flow of water received as precipitation.

water-supply map - A map showing location of supplies of water readily available for pumps, tanks, trucks, camp use, etc.

wet water - Water with added chemicals, called wetting agents, that increase its spreading and penetrating properties.

wetting agent - A chemical that reduces the surface tension of water and causes it to spread and penetrate more effectively.

wildland - (1) Uncultivated land, excepting fallow lands. (2) Chiefly timber, range watershed, and brush lands not under cultivation.

wildfire - An uncontrolled fire burning on wildland or in other continuous vegetation.

whirlwind - A spinning, moving column of ascending air rising from a vortex. Over a fire area may carry aloft smoke, debris, and flames. These range from a foot or two in diameter to small tornados in size and intensity. (Also called fire whirl or fire devil).

zone (Fire) - Geographical area involving a wildfire perimeter with fire control forces under the direction of a Zone Boss. The zone being a major area of the fire and the fire perimeter in a Campaign Fire organization (in fire management terms).

Zones 1 and 2 and 3

Zone (Classified land area of agency responsibility; C.D.F.) Zone 1: That land area of California having a timber or watershed cover designated by the Board of Forestry as having general statewide value, but not including lands within incorporated cities or being the primary fire protection responsibility of the Federal government. Synonymous with "Clarke-McNary Zone."

Zone 2. Lands of general but secondary statewide value similarly designated by the Board of Forestry, but not being within the so-called Clarke-McNary Zone.

Zone 3: Lands not within Zones 1 and 2, and not being forest or watershed lands owned by the Federal government.