



California Legislature

Joint Legislative Audit Committee

GOVERNMENT CODE SECTION 10500 et al

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S. FLOYD MORI
CHAIRMAN

September 3, 1980

016.1

The Honorable Speaker of the Assembly
The Honorable President pro Tempore of the Senate
The Honorable Members of the Senate and the
Assembly of the Legislature of California

Members of the Legislature:

Your Joint Legislative Audit Committee respectfully submits the Auditor General's report concerning aerial firefighting contracts between California Department of Forestry and commercial airtanker operators. This report indicates that the California Department of Forestry is effectively controlling costs associated with aerial firefighting contracts. This report also points out that the California Air National Guard's role in aerial firefighting is strictly supplementary. That is, the guard's aircraft are to be dispatched only when suitable commercial airtankers are not readily available to respond to emergency fire situations.

The auditors are Eugene T. Potter, Audit Manager; and Steven M. Hendrickson.

Respectfully submitted,

S. FLOYD MORI
Chairman, Joint Legislative
Audit Committee



THOMAS W. HAYES
AUDITOR GENERAL

California Legislature

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□

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August 28, 1980

Letter Report 016.1

Honorable S. Floyd Mori
Chairman, and Members of the
Joint Legislative Audit Committee
State Capitol, Room 4168
Sacramento, California 95814

Dear Mr. Chairman and Members:

In response to your request, we have reviewed the aerial firefighting contracts between the California Department of Forestry (CDF) and commercial airtanker operators as well as the role of the California Air National Guard in aerial firefighting. This review was conducted under the authority vested in the Auditor General under Section 10527 of the Government Code.

Study Results

Our review indicated that the California Department of Forestry has implemented procedures to effectively control costs associated with the aerial firefighting contracts. Further, we found that the use of the California Air National Guard in aerial firefighting is by design strictly supplementary. That is, the California Air National Guard is activated only when suitable commercial airtankers are not readily available to respond to emergency fire situations.

Our audit work was conducted at four air attack bases, two dispatching centers, and at the headquarters of the California Department of Forestry in Sacramento. We interviewed the CDF's Director of Fire Control and the Senior Air Operations Officer as well as CDF firefighting and dispatching personnel.

Background

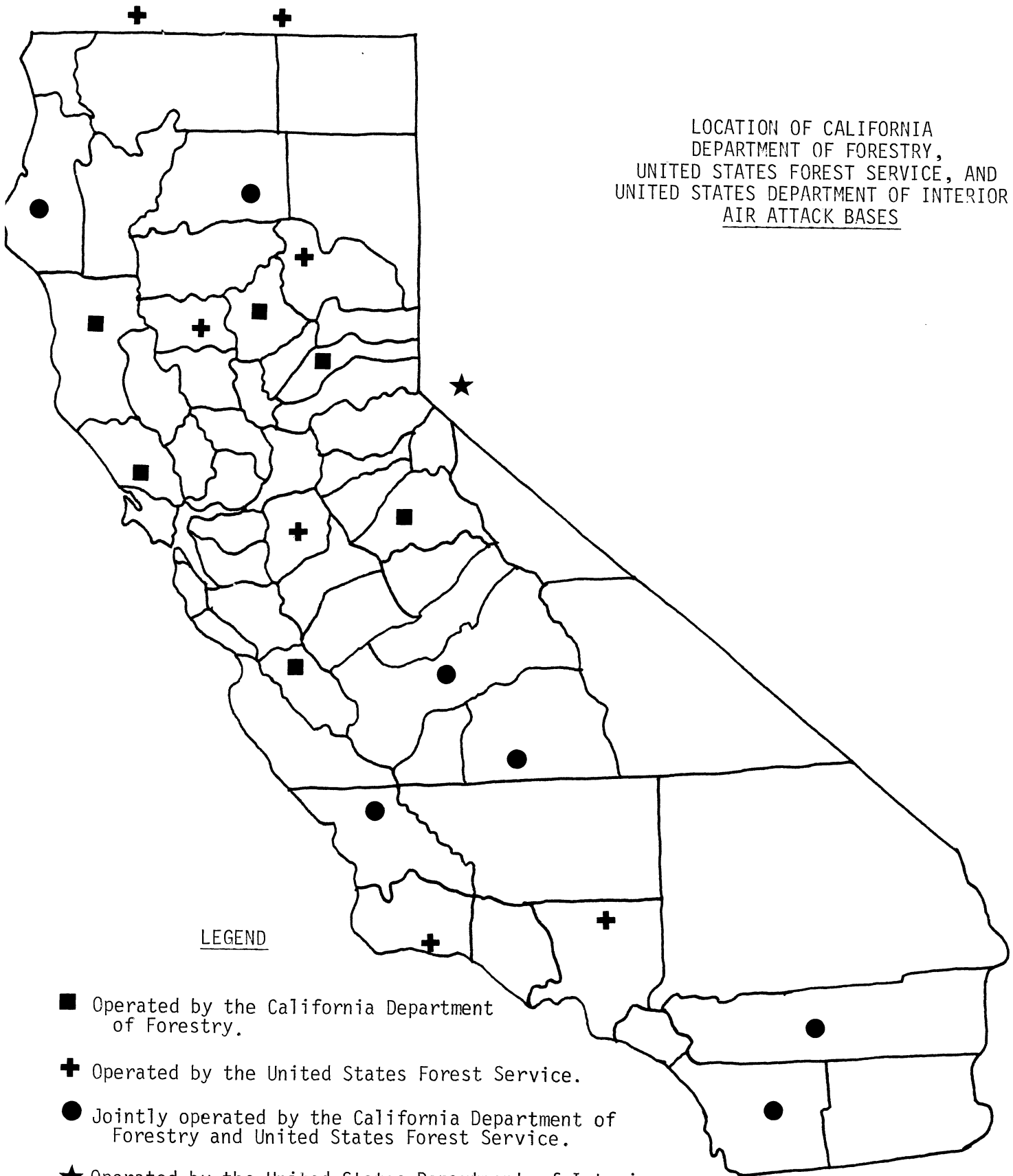
The California Department of Forestry's air attack program is designed to assist firefighting ground personnel by placing water, chemicals, and personnel at fire scenes in support of ground forces. To accomplish this objective, the CDF contracts for aircraft services with commercial operators. The CDF can also dispatch United States Forest Service (USFS) aircraft to wildland fires.

The CDF has awarded a total of five contracts to four firms for the operation and maintenance of 22 airtankers and 13 air-coordination aircraft. Additionally, the CDF has contracted with six firms for the use of 9 helicopters.* The CDF's airtanker fleet is primarily composed of military anti-submarine aircraft that have been converted to firefighting use. These aircraft have been leased from the United States Navy at no cost; however, the CDF is required to convert these aircraft for firefighting use and provide for their repair and maintenance. The CDF's air-coordination aircraft are used to maintain a CDF air attack officer in a flight pattern above the fire. From this vantage point, the air attack officer directs all airtanker drops of fire retardant.

In addition to these resources, the CDF can dispatch USFS and United States Department of Interior aircraft to wildland fires. The USFS has a total of 16 airtankers at 14 air attack bases located in California and Oregon. The U.S. Department of Interior maintains two airtankers at an air attack base in Minden, Nevada. Air attack bases are distributed throughout California so that airtankers can generally respond within 20 minutes to any fires in locations under the CDF's protection. The following map depicts the locations of all California CDF, USFS, and U.S. Department of Interior airtankers.

* Normally, the CDF is budgeted for 21 airtankers and 7 helicopters. However, CDF's budget for the 1980 fire season includes a special augmentation that allowed them to contract for additional aircraft.

LOCATION OF CALIFORNIA
DEPARTMENT OF FORESTRY,
UNITED STATES FOREST SERVICE, AND
UNITED STATES DEPARTMENT OF INTERIOR
AIR ATTACK BASES



LEGEND

- Operated by the California Department of Forestry.
- ⊕ Operated by the United States Forest Service.
- Jointly operated by the California Department of Forestry and United States Forest Service.
- ★ Operated by the United States Department of Interior.

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The California Department of Forestry
Has Implemented Procedures to
Effectively Control Costs
Associated with Aerial Firefighting Contracts

The California Department of Forestry has implemented procedures to effectively control costs incurred in aerial firefighting contracts. Primarily, two types of costs are involved: the fee paid to the contractors for maintaining the daily availability of aircraft and the fee paid to the contractors for their flight time. The CDF has controlled the daily availability fee by establishing the length of the period of availability, by seeking competitive bids on this fee, and by ensuring that contractors demonstrate their readiness to fly. Likewise, the CDF regulates contractors' flight time since contractors do not fly to a fire until dispatched by CDF personnel. CDF personnel also informally monitor the contractors' time in flight. Further, through the use of a preplanned system for dispatching aircraft, the CDF minimizes costs and response time. Our tests and observations also verified that contractors' time in flight and time in responding to wildland fires were reasonable.

The contractor is paid both the daily availability fee and the hourly flight fee while flying to a fire. The daily availability fee covers the contractor's fixed costs of maintaining the aircraft in constant readiness for dispatch. These costs include insurance, overhead, and the salaries of maintenance personnel. The hourly flight fee represents the contractor's flight costs: fuel, oil, and pilot's flight pay.

During daily standby hours--usually between 10:00 a.m. and 30 minutes before sunset--flight crew personnel remain at the base of operations in readiness for dispatch. Airtankers are normally on standby for nine out of ten days. The tenth day is a mandatory day off for both plane and pilot. Air-coordination planes and helicopters are available seven days a week.

Daily Availability Fee

The CDF has taken several steps to assure that costs incurred as a result of the daily availability fee are reasonable. These steps include:

- Establishing the length of the period of availability;
- Seeking competitive bids on the daily availability fee;
- Ensuring that contractors demonstrate their readiness to fly.

The CDF controls the total days of availability that the contractor can be paid for by establishing the length of the designated availability period, which coincides with the peak of the fire season in a particular area. In most Northern California counties, for example, the availability period lasts between three and four months, whereas in several Southern California counties, it extends over five months. Additionally, the CDF seeks competitive bids on the daily availability fee in an attempt to reduce costs.

The CDF also controls costs by requiring that the contractor demonstrate each day that the aircraft is ready for flight. The contractor conducts a daily preflight maintenance inspection and run-up; that is, each of the aircraft's engines is started and run for several minutes. In this way, the CDF ensures that it pays the daily availability fee only for the time that the contractor is ready to fly. The CDF does not pay the contractor for periods in which the aircraft is out of service.

Flight Fee

Aside from controlling daily availability fees, the CDF has instituted measures for maintaining control over the contractor's hourly flight fee--those flight costs the contractor incurs in responding to a fire. CDF personnel, not the contractors, dispatch aircraft to a fire. In addition, CDF personnel monitor flight time by notifying personnel at the fire of the aircraft's estimated time of arrival and by reviewing the contractor's flight time while preparing

invoices. The CDF also minimizes costs and response time by dispatching the closest available aircraft to the fire through the use of a preplanned system. Our tests and direct observations of this system confirmed that flight times were reasonable.

The flight fee is established by the CDF to compensate contractors for the flight costs they incur in responding to a fire; the fee includes a reasonable profit. Aircraft flight time is calculated in hours and minutes from the time the aircraft has begun an authorized take-off roll until its first complete stop at the parking, loading, or fueling area.

As stated above, the decision to dispatch aircraft to a fire is always made by CDF personnel, not by the contractors. Either CDF dispatchers or CDF firefighters at the scene make the decision to dispatch airtankers to a fire.

Once airtankers have been dispatched, the contractor's performance in flying to and from the fire is informally monitored by the dispatcher and the air attack officer. The dispatcher, after sending aircraft to a fire, notifies either the air attack officer or ground personnel at the fire of the airtanker's estimated time of arrival. This estimate is based upon the distance that the airtanker must fly to the fire and the speed of the aircraft. If an airtanker's arrival at the fire varies significantly from its estimated time of arrival, CDF personnel will take appropriate steps to determine whether the contractor should be penalized.

CDF air attack officers perform another check on the reasonableness of the contractor's flight time. The air attack officer at each air attack base prepares invoices detailing the time required for the contractor to fly each sortie.* The officers copy this information from airtanker timecards. If any flight time is excessive, the air attack officer can then take appropriate steps to determine whether the contractor should be paid in full for these flights.

The CDF further minimizes costs and response time by dispatching the closest available aircraft to the fire.

* Each sortie represents a take-off and a landing. In fighting one fire, an airtanker may take off and land many times to reload the aircraft with chemical retardant after each drop.

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The CDF normally dispatches aircraft to the scene of a fire from the air attack base nearest the fire. If airtankers at this base have been committed to another fire, then aircraft are called from the base next closest to the fire. Aircraft are dispatched in accordance with a system that predesignates which air attack bases and aircraft are to be called first; the dispatches are based upon the location and the intensity of the fire.

At four air attack bases, we reviewed a sample of recorded airtanker flights to various wildland fires. We found that the time of flight was reasonable based upon the distance flown and the speed of the aircraft. At one of the air attack bases, we observed the dispatch of several airtankers to a wildland fire about four miles away from the base. Each of the airtankers flew directly to the fire, dumped the retardant in accordance with the instructions of the CDF air attack officer, then returned to the base to load more retardant. At 9:46 a.m., six minutes after dispatch, the first airtanker took off. By 10:04 a.m. (18 minutes later), after having dumped 800 gallons of chemical retardant on the fire, this airtanker was back at the base being reloaded. By 10:08 a.m., the airtanker was on the take-off roll for its second sortie.

The California Air National Guard
Plays a Supplemental Role
in Aerial Firefighting

In examining the role of the California Air National Guard in aerial firefighting, we found that the guard is mobilized only when suitable commercial airtankers are unavailable to respond to emergency fire situations. However, the response time of these aircraft exceeds that of the commercial airtankers because of the time required to load the firefighting equipment onto the aircraft, delays in assembling the personnel trained to operate the equipment, and the procedures for dispatching the aircraft.

Nationwide, there are eight firefighting units called modular airborne firefighting systems (MAFFS). The California Air National Guard maintains three of these units, which can be fit into the C-130 aircraft. Each of these units delivers 3,000 gallons of chemical retardant to a wildland fire. But according to CDF officials, minimum response time of MAFFS-equipped aircraft is approximately four hours, whereas CDF or USFS aircraft response time is approximately 20 minutes.

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The response time of the MAFFS-equipped aircraft is greater because of the time required to load the firefighting equipment onto the aircraft, delays in assembling personnel trained in the use of the MAFFS, and the procedures for dispatching the aircraft. Before the Air National Guard can respond to a fire, the modular airborne firefighting system and its support equipment must first be loaded onto the aircraft. In addition, because personnel trained in the use of the modular airborne firefighting system are military reservists, they are sometimes unavailable and must be summoned to the air base.

The procedures for dispatching the military aircraft also extend the response time. To call upon the MAFFS-equipped aircraft, the CDF first contacts the USFS. The USFS Regional Forester must determine that all commercial airtankers within that USFS region are committed to another fire. After making this determination, the Regional Forester specifically requests a MAFFS-equipped aircraft mission from the Boise Interagency Fire Coordination Center (BIFC), a body of federal agencies with wildland firefighting resources.* If the Director of the BIFC agrees that such a mission is appropriate, he places a request through proper military channels.

The following table summarizes all MAFFS firefighting activity throughout the United States between 1975 and 1980.

* The agencies include the U.S. Forest Service, the Bureau of Indian Affairs, the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service.

ACTIVATION OF MAFFS-EQUIPPED AIRCRAFT
BETWEEN 1975 AND 1980

	<u>Number of Times Activated</u>	<u>Number of Fires Fought</u>	<u>Hours Flown</u>	<u>Number of Sorties</u>	<u>Gallons of Retardant Dropped</u>
1975	3	11	77	132	396,000
1976	1	0 ^a	--	--	--
1977	1	14	244	204	612,000
1978	--	--	--	--	--
1979	1	8	167	254	732,000
1980 ^b	1	1	4	7	21,000

Source: United States Forest Service

^a In this instance, the aircraft did not fight the fire. By the time the MAFFS-equipped aircraft arrived at the air attack base nearest the fire, fire conditions changed and they were no longer needed.

^b The 1980 statistics include information only through July 31, 1980.

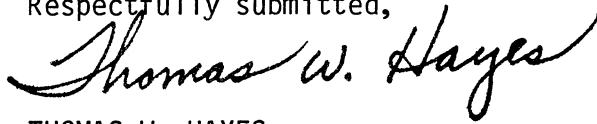
As depicted in the table, all MAFFS-equipped aircraft have been activated only seven times between 1975 and 1980. This frequency rate illustrates that these aircraft are mobilized only to reinforce commercial airtankers.

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Conclusion

Our review disclosed that the California Department of Forestry has implemented procedures to effectively control costs associated with the aerial firefighting contracts. Additionally, we found that the Air National Guard's role in firefighting is by design strictly supplemental.

Respectfully submitted,

A handwritten signature in cursive script that reads "Thomas W. Hayes". The signature is written in black ink and is positioned below the typed name.

THOMAS W. HAYES
Auditor General

Staff: Eugene T. Potter, Audit Manager
Steven M. Hendrickson

DEPARTMENT OF FORESTRY

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F-3

August 27, 1980

Honorable Thomas W. Hayes
Office of the Auditor General
925 L Street, Suite 750
Sacramento, CA 95814

Dear Mr. Hayes:

Thank you for the opportunity to review and comment on your draft report on the California Department of Forestry's aerial firefighting contracts.

This report adequately covers the purpose of your review and treats the air program control procedures fairly. I am also in complete agreement with the conclusions.

I appreciate very much the professional manner in which the review was conducted and the opportunity to discuss the report with the author.

Sincerely,

A handwritten signature in cursive script, appearing to read "David E. Pesonen".

DAVID E. PESONEN
Director

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DEPARTMENT OF FORESTRY

1416 NINTH STREET
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F-3

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