



National Interagency Fire Center

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May 21, 2004

To: Geographic Area Coordination Groups
From: National Multi Agency Coordination Group
Subject: MAFFS - Operational Considerations

Background/Key Points:

Congress established the Modular Airborne Fire Fighting System (MAFFS) Program in the early 1970's to provide emergency capability to supplement commercial airtanker support within the contiguous 48 states. Operations across international borders into Mexico and Canada are not authorized. The using agency is responsible for **ALL** costs of the military associated with the activation, including salaries.

MAFFS is a self-contained, pressurized 2700-gallon dispersal system that allows military Lockheed C-130 aircraft to be converted to wildland firefighting airtankers with no structural modification to the airplane. There are eight MAFFS units in the system, 2 each assigned to 4 different military units. Due to the composition of the military units, (i.e. part time employees that hold regular civilian jobs) crew changes are made about every 7 days.

When MAFFS is activated an agency support organization of 13 people or more is ordered. The specialty positions and number of people needed are identified in the MAFFS Operating Plan. The MAFFS Liaison Officer (MLO) is a critical agency position. The MLO provides program management on site for the using agency. The MLO is familiar with the FS F&AM policies and procedures, and military operational assistance programs. There is a limited number of MLOs and their availability will be a limitation on the number of bases that can be staffed concurrently. Based on past experience, it is unlikely that more than two or three bases could be staffed concurrently for extended periods of time. It is possible that additional bases may be utilized as reload facilities during the day with the airplanes recovering back to the designated base at night. Recovery to a designated base will provide the necessary program oversight, administrative and logistical support, as well as MAFFS and airplane maintenance.

It is the agency's responsibility to provide lodging, meals, and ground transportation for the military personnel. When operating at the designated or primary MAFFS base the MLO and

staff provides the necessary logistics to meet this requirement. At reload bases meal(s), etc. will need to be provided to flight and ground crews during the daily operations. This should be coordinated thru the MLO for proper administrative tracking.

The number of compressors available will also be a limitation on the number of operating/reload bases. There are 4 compressors with one assigned to each of the four military units tasked. An air compressor module provides air pressure for charging the MAFFS system; it stays at the airtanker base and is used to recharge the system between runs. Without the compressor MAFFS is unusable. The type of compressor currently used is not readily available to rent or lease. Six other compressors have been located on the east coast and with additional equipment can provide the pressure required to charge the MAFFS units. These compressors are available and can be leased for six months.

Appendix 6 of the MAFFS Operating Plan identifies bases that should be capable of supporting a MAFFS operation. “Any base proposed for MAFFS operations requires concurrence and approval by the military as well as the USDA Forest Service Assistant Director – Operations, WO-F&AM-NIFC/National MAFFS Liaison Officer.” Bases can be pre-selected for MAFFS reload operations and operating plans developed for each facility. Among the many issues to address is:

- Who will operate the compressor and how will they be trained? This will be especially necessary for the leased compressors.
- Appropriate communication equipment between the base and the MAFFS airplanes needs to be verified. There are only three MAFFS base stations available at NIICD.
- Military personnel are required to load retardant into the MAFFS units and to provide ramp marshalling as necessary. This small contingent will need to be pre-positioned at the bases to be used. (Meals, transportation, and lodging will need to be provided for these people.)
- Local issues with contract retardant bases and loading crews at existing airtanker bases will need to be resolved.
- MAFFS aircraft do not sit loaded with retardant or water. They are loaded when an order is received.
- While MAFFS aircraft are expected to conform to standard operating procedures established for contract airtankers, they do not have a specific requirement “to be able to be airborne within 15 minutes” after receiving a dispatch order.

MAFFS pilots are not initial attack qualified. MAFFS qualified leadplane pilots are required to lead MAFFS airplanes on fire missions. Trainee leadplane pilots may not lead or supervise MAFFS pilots over incidents. MAFFS airplanes are not authorized to make drops after official sunset. A normal duty day for MAFFS operations is limited to 12 hours.

Due to the design age of the dispensing equipment and the purpose for which it was built, the MAFFS program is very different both tactically and operationally than the commercial airtanker fleet. When dispensing retardant, 6 of the 8 MAFFS airplanes are “single shot” systems. They do not have the capability of hitting multiple targets by stopping and starting the retardant load. All of the retardant is dispensed at one time. The other two airplanes have incremental systems. They can split their load into thirds if necessary, but this function is normally only utilized at

training. Regardless of the system, when dispensing ends the retardant trails from the airplane for several seconds. There is no clean cutoff and the exit route of the MAFFS airplane must take this into consideration. When the system is operated at maximum pressure the highest coverage level (CL) of retardant that you can expect is about CL 4. Due to the age of the equipment the crew is hesitant to set maximum pressure so in reality, maximum coverage will be more like a three. The dispensed fluid is a much smaller droplet size than typically found in a commercial airtanker. For this reason they are best used in finer fuels. If used in heavy canopies or fuels, it is best to make multiple drops on top of each other (layer the retardant). The smaller droplet size is why they can drop on structures or people with very little risk of damage or injuries.

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