[](http://www.blm.gov/)[](http://www.fs.fed.us/)[](http://www.fws.gov/)[](http://www.nps.gov/)[](http://www.bia.gov/)[](http://www.fire.ca.gov/)

### Modular Airborne Firefighting Systems

### FAQ and Fact Sheet

### March 6, 2012

Approximately 100 civilian and military personnel are gathering in Ventura County March 5-8, 2012 for annual MAFFS training and certification. During the training, up to 12 practice flights per day will be conducted, in which military C-130s will drop water in the Angeles Forest area near Lake Hughes target sites on the Lizzy drop zone. The training is hosted by the U.S. Forest Service and 146th Airlift Wing. The aircraft will be operating primarily from at Channel Islands Air National Guard Station, and from air tanker base Fox Field.

**Facts:**

* The MAFFS program is a joint effort between the U.S. Forest Service and Department of Defense (DoD). The U.S. Forest Service owns the MAFFS equipment and supplies the retardant, while the DoD provides the C-130 aircraft, pilots, and maintenance and support personnel to fly the missions.
* MAFFS are important because they provide a “surge” capability that can be used to boost wildfire suppression efforts when commercial airtankers are fully committed or not readily available.
* During the practice training flights, military C-130s equipped with MAFFS systems will drop ***water only*** on targets on the Lizzy drop zone. During actual wildfire suppression operations, military C-130s equipped with MAFFS systems may drop up to 3,000 gallons of retardant on wildfires.
* MAFFS can be activated for use on state fires by the Governors of the states where the Air National Guard flight crews that operate them are based (California, Wyoming, and North Carolina). They can be federally activated when needed for use on fires throughout the United States based on an agreement with the DoD.
* Each year, an average of more than 75,000 wildfires burn an average of more than 6.5 million acres of land in the United States. Air tankers are used to reduce the intensity and slow the growth of wildfires so that firefighters on the ground can build containment lines around them. Air tankers are not normally used to suppress wildfires directly.
* Professional Incident Commanders and fire managers decide whether to use air tankers, and where to use them to provide support to firefighters working to suppress wildland fires based on the objectives they have established to manage wildland fires and the strategies they are using to achieve them.

**FAQ:**

**What are MAFFS?**

MAFFS are portable fire retardant delivery systems that can be inserted into military C-130 aircraft without major structural modifications to convert them into air tankers when needed.

**How many MAFFS units are there and who owns them?**

There are a total of 8 MAFFS systems ready for operational use, plus one spare. They are owned by the U.S. Forest Service and are available for use in military C-130 H and J model aircraft by flight crews trained in this mission.

**What military installations provide C-130s to fly MAFFS during fire season?**

Military installations in Wyoming, North Carolina, California, and Colorado provide C-130s to fly MAFFS missions. Specifically, the 153rd Airlift Wing, Wyoming Air National Guard, Cheyenne; the 145th Airlift Wing, North Carolina Air National Guard, Charlotte; the 146th Airlift Wing, California Air National Guard, Port Hueneme; and the 302nd Airlift Wing, Air Force Reserve, Peterson Air Force Base, Colorado.

**How much retardant can C-130s equipped with MAFFS deliver to wildfires?**

Military C-130s equipped with slide-in MAFFs units can drop up to 3,000 gallons of retardant or suppressant on wildfires. They can discharge their entire load in under five seconds or make variable drops.

**How many times was MAFFS activated last year? How often are MAFFS typically deployed during fire season?**

Last year, 2011, MAFFS was activated eight times. The number of MAFFS flights each year varies with wildland fire activity. From 2000 to 2010, military C-130s with MAFFS systems delivered a total of approximately 9.1 million gallons of retardant on wildfires, an average of about 910,000 gallons per year, as follows:

2000 – 2.1 million gallons

2001 - .5 million gallons

2002 – 1.6 million gallons

2003 - .15 million gallons

2004 - .87 million gallons

2005 - .88 million gallons

2006 – 1.5 million gallons

2007 - .2 million gallons

2008 – 1.3 million gallons

2009 – 0 gallons

2010 – 12,000 gallons

2011 – 1,222,649 gallons

**Who pays for MAFFS?**

The U.S. Forest Service reimburses the military for all costs associated with MAFFS per the Economy Act.

**Are there any limitations on MAFFS?**

MAFFS aircraft are configured with a radio for communications with other aircraft and ground personnel on scene. All MAFFS missions require a qualified leadplane. MAFFS aircraft are authorized to drop retardant only during daylight hours. On international activations, leadplane pilots deploy with military crews and assist them in tactics and coordination with other on scene resources.

**Who can activate MAFFS?**

MAFFS can be activated by: 1) the National Multi-Agency Coordinating Group (NMAC) at the National Interagency Fire Center (NIFC) in Boise, Idaho for use on wildfires burning on land under the jurisdiction of any agency anywhere in the U.S. and; 2) the Governors of California, Wyoming, and North Carolina, where Air National Guard Airlift Wings tasked with the MAFFS mission are located, for use on wildfires burning on land under state jurisdiction in their states.

**What is NMAC and how do they decide when to activate MAFFS?**

NMAC is comprised of representatives of federal, state, and local wildland firefighting agencies and organizations. Incident Commanders request airtankers from local dispatch centers, which request them from Geographic Area Coordination Centers, which request them from the National Interagency Coordination Center at NIFC. When requests for airtankers nationally exceed the availability of existing commercial airtankers NMAC may decide to activate MAFFS by submitting a Request for Assistance to DoD.

NMAC considers several criteria in determining whether to activate MAFFS. The most important criteria, and the only one that is required to be met, is that the commercial airtanker fleet is committed or not readily available. Other criteria relate to national and geographic area preparedness levels; the amount of ongoing and anticipated initial attack activity; and availability of other aviation assets including single engine airtankers and heavy and medium helicopters.

**Why can’t the Governor of Colorado activate MAFFS for state fires when a flight crew that operates it is based in that state?**

The Airlift Wing that operates MAFFS in Colorado is an Air Force Reserve unit, which is a federal resource that cannot be directly activated by a state Governor. The Governor of Colorado can make a request to NIFC for the MAFFS in Colorado if thought to be of immediate need.

**What role do MAFFS play in wildfire suppression? Are they first responders or are they used in a backup role when all other resources are exhausted?**

MAFFS provide a “surge” capability that can be used to boost wildfire suppression efforts when commercial airtankers are fully committed or not readily available. MAFFS are deployed to activation sites where they are used in conjunction with other wildfire suppression resources. MAFFS are less mobile than commercial airtankers due to their required support structure and are often positioned where there is an expectation of sustained wildfire activity.

**What is the difference between Legacy MAFFS systems and MAFFS II systems?**

In 2011, the U.S. Forest Service, which owns the MAFFS systems, successfully transitioned from systems developed in the 1970s, known as “Legacy” systems, to new systems, known as “MAFFS II.” MAFFS II systems incorporate new design features and technology that provide a number of advantages over the Legacy MAFFS systems. While Legacy MAFFS relied on specialized ground-based equipment, the MAFFS II is more self contained. This allows the MAFFS II to use existing agency tanker bases and reduce flight time to and from fires. Ultimately, this results in more efficient use with potentially reduced costs and more retardant on the fire. The MAFFS II provides the capability for higher concentrations of retardant that can be more effective in creating fire containment lines than the Legacy MAFFS. Finally, the MAFFS II has the capability to use foam injection which provides additional options for incident managers.

**Why can’t MAFFS operate out of all of the same airtanker bases as commercial airtankers?**

The DoD and U.S. Forest Service criteria for airtanker bases for C-130s equipped with MAFFS are different than the criteria for airtanker bases for commercial airtankers. The criteria for airtanker bases for C-130s equipped with MAFFS include the weight bearing capacity of the runway, taxiway, and retardant loading area; the height of objects on the “apron,” or retardant loading area; space for clear areas around the aircraft; the availability of MAFFS-qualified personnel; and adequate logistical support. Many airtanker bases for commercial airtankers cannot meet some or all of these criteria.

**What if the MAFFS II onboard compressors fail?**

If the onboard compressors fail, the MAFFS II systems can be operated like Legacy systems with ground support equipment.

**What does MAFFS training consist of?**

Training includes both classroom and flight training for military flight crews, civilian lead plane pilots, and support personnel.

**What support is needed when MAFFS are activated?**

Requests for civilian management personnel and re-positioning of lead planes occur simultaneously and is planned to coincide with the arrival of the military aircraft. Specific airports are designated for these operations with concurrence of the military and the U.S. Forest Service.

**How quickly can MAFFs be mobilized?**

The interagency agreement requires that MAFFS be operational within 48 hours. However, MAFFS operations have routinely been operational within 36 hours of the initial request.

**How do C-130 pilots know where to drop retardant?**

Firefighters on the ground make requests for retardant drops to a dispatch center. Dispatchers determine which aircraft to assign to the drops, based on the “closest available resources” concept. A lead plane pilot guides the C-130 aircraft to the site and communicates with firefighters on the ground to identify the location of the retardant drop. The lead plane and C-130 typically do a “dry run” over the site before actually dropping retardant.

**What does fire retardant do?**

Retardant is a water-based product designed to alter the way the fire burns, decreasing the fire intensity and slowing the advance of the fire, even after the water it originally contained has evaporated. This enables ground crews to access the area and construct fireline, which is the way wildland fires are suppressed.

**What is fire retardant made of?**

Long term retardants, mixed for delivery to the fire, contain about 85% water, 10% fertilizer, and 5% minor ingredients: colorant (iron oxide – rust, or fugitive color that fades with exposure to sunlight), thickener (natural gum and clay), corrosion inhibitors, stabilizers, and bactericides.

**Why is fire retardant red?**

Colorants are added so that retardant drops are visible.

**Is retardant dropped for political purposes?**

Professional fire managers determine and implement strategies and tactics to suppress wildland fires based on the objectives they are trying to achieve.

**What is the status of the lawsuit over the use of fire retardant on National Forest System lands?**

In July 2010, the United States District Court for the District of Montana ruled the U.S. Forest Service’s 2007 Environmental Assessment (EA) for the aerial application of fire retardant violated the National Environmental Policy Act (NEPA) and that the agency’s Endangered Species Act (ESA) consultation with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries) violated the ESA. The Court ordered the U.S. Forest Service to fully comply with NEPA and to re-consult with USFWS and NOAA Fisheries to comply with the ESA. The Court ordered the U.S. Forest Service to issue a new decision no later than December 31, 2011. To comply with the Court’s order, the U.S. Forest Service completed a programmatic EIS in compliance with NEPA and formally consulted with USFWS and NOAA Fisheries in compliance with ESA. In December, 2011, the U.S. Forest Service released the Record of Decision (ROD) for the Nationwide Aerial Application of Fire Retardant on National Forest System lands. The ROD permits continued use of fire retardant applied from aircraft and adds protocols that enable the agency to better protect threatened and endangered plant and animal species and their habitats. For more information, go to [www.fs.fed.us/fire/retardant/index.html](http://www.fs.fed.us/fire/retardant/index.html)