



**United States Department of Agriculture  
Forest Service**

# *Aviation Operations and Safety Plan*

*Pacific Southwest Region*

**June 15, 2009**



## Table of Contents

### Aviation Program – Chapter 1

1.1 Purpose	2
1.2 Objectives	2
1.3 Program Overview	2
1.4 Organization and Staffing	2
1.5 Program and Resources	4

### Aviation Safety – Chapter 2

2.1 Aviation Safety Program	6
2.2 Safety Standards	6
2.3 Aviation Safety Education and Training	6
2.4 Aircraft Mishap Prevention	7
2.5 Safety Audits	7
2.6 Aviation Safety Technical Assistance Teams (ASTAT)	7
2.7 Aviation Safety Communiqué – SAFECOM	7
2.8 Incident/Accident Response	8
2.9 Aircraft Mishap Investigation	8
2.10 Aviation Safety Awards Program	8

### Aviation Procedures – Chapter 3

3.1 Procedures	9
----------------	---

### Aircraft Maintenance – Chapter 4

4.1 Procedures	19
----------------	----

### Search and Rescue – Chapter 5

5.1 General	21
5.2 Procedures	21

### Appendix 1 – SNAMP Program

24

### Appendix 2 – Law Enforcement

26

### Appendix 3 – Forest Health Protection

32

### Appendix 4 – Definitions

40

### Appendix 5 – Abbreviations

44

### Appendix 6 – References

46

## **AVIATION PROGRAM**

### **Chapter 1**

#### **1.1 Purpose**

The purpose of the plan is to identify Regional Aviation Management goals, objectives, programs and activities, and to provide strategic and operational guidance to each organizational level as appropriate. This plan is supplemental to the, *National Aviation Management Plan* (FSM 5704.3 and 5711) and will serve as the Regional and Forest/Unit Aviation Operations and Safety Plan. Individual forests/units may supplement this plan. When supplemented, the Regional Aviation Officer (RAO) will review the Unit/Forest Aviation Operations and Safety Plans.

#### **1.2 Objectives**

- A. To provide emphasis on aviation safety
- B. To provide an expansion for local guidance, but not a replacement for aviation management directives
- C. To describe regional aviation management programs and activities

#### **1.3 Program Overview**

Regional aviation resources include contract, rental, and Forest Service (FS) owned aircraft. The primary mission of these aircraft is wildland fire suppression. Mission support aircraft include airtankers, lead-planes, aerial supervision, smokejumper/paracargo aircraft, helicopters, fire-detection aircraft, and passenger transportation aircraft. Other missions may include all risk operations and support for various land management activities such as prescribed burns, forest health protection, aerial photography, law enforcement, and search/rescue operations.

#### **1.4 Organization and Staffing**

- A. Regional aviation staff and responsibilities:
  - 1. Regional Aviation Officer (RAO). Responsible to the R-5 F&AM Director for leadership, management, and direction of the aviation program, including coordination of aviation activities with other staffs, agencies, groups, and forests (FSM 5720.47c).
  - 2. Regional Aviation Safety Manager (RASM). Responsible to the R-5 F&AM Director for developing and implementing a comprehensive aviation safety program. This includes policy development, safety awareness and mishap prevention, risk and trend analysis, mishap reporting, Safety Systems Management and investigation (FSM 5720.47d).
  - 3. Helicopter Program Manager/Inspector Pilot (HIP). Responsible to the RAO for Regional helicopter program leadership, coordination and support. Responsible to ensure compliance with agency helicopter standards and flight procedures. Provides technical oversight and support for contracted helicopters including responsibility for

pilot inspections and carding. Responsible for performing contract helicopter inspections and pilot approvals. Directs the Helicopter Operations Specialist in the helicopter program management and oversight.

4. Helicopter Operations Specialists (HOS) Responsible for leadership, coordination, and direction of the helicopter program. Proposes policies, standards and operational procedures. Coordinates training in helicopter management. Provides technical support for specialized programs like aerial ignition, helitack, and aerial delivery systems (fast rope and rappel).
  5. Aviation Unit Managers/Pilots (NZ & SZ) Responsible to the RAO for operations within their unit. Provide leadership, coordination and direction for leadplane program, pilot training, smokejumper aircraft operations, aircraft maintenance, avionics, and fixed wing support to the forests. Perform inspections and approvals of contracted pilots and aircraft. Responsible for operation of FS aircraft and all aviation missions.
  6. Pilots. Responsible for safe, efficient, and cost effective use of aircraft (FSM 5704.7 and 5712.11).
  7. Airplane/Helicopter Inspector Pilots. Responsible for performing contract inspections and pilot approvals.
  8. Aircraft Maintenance Inspector (AMI). Responsible for airworthiness inspections, program leadership, coordination, and direction for agency used aircraft. Performs fleet, contract and Interagency aircraft inspections.
  9. Avionics Inspector Conducts and oversees contracted avionic maintenance tasks on agency used aircraft. Performs fleet and contract aircraft inspections.
  10. Airtanker Base Program Manager Provides management and oversight of Region 5 Airtanker and reload bases. Conducts airtanker base inspections every other year.
  11. Aerial Supervision Module (ASM) Program Manager Responsible for leadership, coordination, training and oversight of the Region 5 ASM program.
  12. FireWatch Program Manager Provides management and oversight of two Forest Service owned Bell 209 helicopters. Responsible for development and operation of remote sensing aircraft, equipment, and maintenance
- B. The regional aviation staff is supported by:
1. GACC Aircraft Coordinator. Ensures regional aircraft coordination, scheduling, and tracking. Responsible for the regional dispatch of smokejumper aircraft, lead planes, light airplanes, helicopters, and air tankers. Processes resource orders for aircraft received from within the geographical area and from NICC. Coordinates Temporary Flight Restriction (FAR 91.137 TFR), Notice to Airmen (NOTAM), and Temporary Tower requests with Federal Aviation Administration (FAA). Serves as the primary contact for aviation dispatch related support and questions.

2. Forest/Unit Aviation Officers (FAO). Responsible for the direction, leadership, and management of the unit aviation program, including coordination of aviation activities with aviation staff in the regional office and of other agencies (FSM 5704.6). Member of the FAO Committee providing oversight to the aviation working groups listed below.
3. Smokejumper Program Manager. Responsible to provide leadership, coordination and direction of the Region 5 smokejumper program.

C. Regional Aviation Working Groups

1. Airtanker Base Working Group Responsible for monitoring and inspecting fixed wing base operations.
2. Air Tactical Group Supervisor (ATGS) Working Group. Responsible to coordinate training and disseminate information in support of the ATGS program.
3. Law Enforcement LE&I. Responsible to coordinate training for aviation operations related to LE&I activities.
4. Helitack Superintendents Working Group. Responsible for coordinating training and disseminating information in support of the Regional Helitack program.

### **1.5 Program and Resources**

A. Programs:

1. Aviation Contracting. National/Regional contract specialists develop, issue, and administer aviation contracts and rental agreements, with aviation personnel serving as contracting officer's representatives and inspectors.
2. Aviation Training. Cadre of Regional aviation trainers will provide specialized training in many aviation job skills i.e. helitack, aerial attack, and helicopter airbase management.
3. Equipment Development. Regional aviation staff provides technical expertise for aviation equipment improvement and development.
4. Pilot and Aircraft Approval. Regional aviation staff evaluates vendor pilots and aircraft. The FS maintains a list of approved aircraft and pilots.

B. Resources:

1. Administrative/Project Aircraft. Aircraft used to support agency activities.
2. Cooperator Aircraft. An affiliated, military or other government agency aircraft.
3. Large Airtankers. These aircraft are national resources used to drop retardant/suppressants on wildland fires.

4. Leadplanes/ASM. These aircraft are national resources used to assist airtankers in the dropping of retardant/suppressants on wildland fires.
5. Regional Type III and National Type I and II Initial Attack Helicopters Standard category aircraft with permanent Helitack modules assigned to them.
6. National Type I and II Large Fire Support Helicopters. Exclusive use helicopters contracted primarily for large wildland fire support. Typically these aircraft will have a Helicopter Manager and or Assistant Helicopter Manager assigned to them.
7. Exclusive Use Air Tactical Aircraft Assigned to specific bases to provide initial attack aerial supervision capability. Regional assets managed and staffed by the assigned Forest.
8. Observation/Reconnaissance Aircraft. Local resources used for fire detection, thermal imagery, forest health surveys, law enforcement, resource surveys, and other projects.
9. Single-Engine Airtankers (SEAT). National, regional, or local resources used to drop retardant/suppressants on wildland fires.
10. Smokejumper/Paracargo Aircraft. National resources used to provide rapid response parachute delivery of firefighters and cargo.

## Aviation Safety Chapter 2

### 2.1 Aviation Safety Program:

Safety awareness is a mental attitude and individual commitment fostered by proper safety management and supervisory procedures. Forest Service management shall be a partner in aviation safety to ensure that the standards and procedures established are understood and followed. **The Regional Aviation Group is committed to ensure operational decisions are made mindfully, with safety given priority over mission accomplishment.** Individuals will be trained, knowledgeable, qualified, and committed to perform their duties safely and effectively.

It is the expressed objective of Region 5 Aviation Management to lead by example, and to foster and inspire the attitude that aviation safety is the foremost priority in all aviation operations. **The Regional Aviation Group is committed to providing the best available support to the field,** including field site visits, and working directly with Forests, Incident Management Teams, and Modules to help them in identify hazards and overcome problems.

All individuals involved in the aviation program play a role in the successful and safe outcome of aviation activities. Individuals observing a safety violation or hazardous condition are expected to speak up and make sure the situation is corrected or reported properly. Any employee is empowered to refuse a flight, whether because of bad weather, questionable aircraft, concerns over pilot performance, or any other condition. **The Regional Aviation Group is committed to a cooperative alliance with all employees** to identify and resolve hazardous situations before they become bad outcomes.

The Aviation Safety Program encompasses risk management controls, evaluations, operating standards, and proactive accident prevention. The Region 5 Aviation Safety Manager is the focal point for all aviation safety activity and interaction.

### 2.2 Safety Standards

Aviation safety standards and requirements are identified in the Federal Aviation Regulations, 5700 Manual, System Safety Assessments, and other guides and handbooks referenced in FSM 5700

### 2.3 Aviation Safety Education and Training

It is the responsibility of all employees and supervisors to ensure they are qualified to accomplish every aviation task or duty assigned. Completing appropriate aviation training increases risk awareness and hazard identification skills. Aviation training requirements are established in FSM 5700 and can be accessed through the Interagency Aviation Training site (<https://www.iat.gov/>). Incident qualifications and certification requirements relating to aviation are found in FSH 5109.17.

## **2.4 Aircraft Mishap Prevention Program**

***The Regional Aviation Group is committed to ensuring aviation operations at all levels are focused on the safety of flight crews and other personnel.*** This will be accomplished by thorough hazard identification, application of mitigation controls, and active accident prevention efforts. Several tools are available on the USFS aviation website to help personnel meet these responsibilities ([http://www.fs.fed.us/fire/av\\_safety/index.html](http://www.fs.fed.us/fire/av_safety/index.html)). Line officer approved aviation operating plans and Project Aviation Safety Plans (PASP) will be prepared on units as necessary to identify proactive accident prevention measures and risk management procedures.

## **2.5 Safety Audits**

***The Regional Aviation Group is committed to providing oversight as necessary to ensure safe aviation operations across the Region.*** Methods include safety audits, and formal and informal evaluations.

Safety audits are a means of determining compliance with safety standards and to detect unsafe conditions prior to them becoming bad outcomes.

Formal evaluations are accomplished using a team of FS, interagency and/or industry aviation and management officials to conduct surveys, audits, and reviews. The evaluation team is responsible for providing a written report of findings to the operational unit and its managing organization. It is the local unit's responsibility to develop and implement an action plan that addresses the findings and recommendations contained in the report. These reviews are typically conducted bi-annually on all Helibases, Airtanker bases and Aviation Dispatch and coordination.

Informal evaluations of aviation bases, incident helibases, and projects are conducted on a more frequent basis by the R-5 RASM or other regional aviation specialists. These informal visits are used to gauge incident tempo and requirements, and help guide RO support and management efforts.

## **2.6 Aviation Safety Technical Assistance Team (ASTAT)**

The purpose of Aviation Safety Technical Assistance Teams (ASTAT) is to expand the oversight and influence of the RASM across multiple incidents and project locations. Operationally, ASTATs work to enhance safety, improve operational efficiency and effectiveness, and are able to provide on-site technical assistance. The RASM has responsibility to order, configure, and manage ASTATs.

## **2.7 Aviation Safety Communiqué - SAFECOM (<http://www.safecom.gov>)**

SAFECOMS are for anyone involved in aviation activities to report any observed condition, act, maintenance problem, or circumstance which they feel has the potential to cause an aviation-related mishap. Analysis of SAFECOM trends helps the Regional Aviation Group focus attention on key areas, and provides evidence of the effect of safety program emphases and efforts.

## **2.8 Incident /Mishap Response**

Each Forest will maintain an Aviation Incident/Mishap Response Guide. The Guide should be available in all Dispatch Office's and must be kept up to date with current contacts and phone numbers. Purpose of the Guide is to outline protocols, procedures and requirements to be initiated in the event of an aircraft incident or accident. These include initiation of search-and-rescue, fire and medical response, and notification of Aviation Safety (1-888-4MISHAP) and Forest Service management.

## **2.9 Aircraft Mishap/Accident Investigation**

Aviation Mishaps/accidents will be investigated in accordance with procedures in FSM 6700, and Interim protocol for investigations of serious injuries and fatalities of on-duty Forest Service employees, dated April 17, 2009

## **2.10 Aviation Safety Awards Program**

"SAFE ATTITUDE" is the interagency safety awareness campaign designed to help people understand that "attitude is everything" in aviation. Airwards reinforce safety as a core value and encourage prevention of aviation mishaps. Everyone is eligible to nominate or be nominated for an Airward. Nominations are submitted through a SAFECOMS by contacting the Regional Aviation Safety Manager.

Airwards are given to people working in and around aviation in recognition of their professional performance during a hazardous aviation event or significant contribution to aviation mishap prevention. Airward recipients are featured in Airward News sharing stories on who's doing things right and sparking new ideas for different operations and programs.

## AVIATION PROCEDURES

### Chapter 3

#### GENERAL

Forest Service aviation activities include both "civil" and "public" operations. Civil aircraft operations shall comply with applicable sections of 14 CFR as well as FS policy. Public aircraft operations shall comply with applicable sections of 14 CFR (control of air traffic, use of airspace, and aircraft registration) as well as FS policy. Life-threatening emergencies may require deviation from policy. The pilot shall take appropriate action to ensure safety of flight. These situations shall be reported by the pilot and documented on SafeCom (Form FS-5700-14).

#### 3.1 Procedures

The following activities and procedures will be guided by the stated policy. In some cases a more detailed explanation is required. In those cases, the appropriate reference is shown.

- A. Aircraft and Pilots: Forest Service employees may use only aircraft and pilots that have been properly approved (FSM 5703.1 and 5720.3.4). Aircraft will display an Aircraft Data Card or letter of authorization in the aircraft. Pilots are required to present a Pilot Qualification Card, or letter of authorization listing the missions for which they are approved to fly. Managers and passengers have the responsibility to request to see these documents, and to confirm that the aircraft and pilot are carded for the intended mission.
- B. Pilot Carding: The Interagency Practical Test Standards (2000) have been formatted to parallel the FAA Practical Test Standards (FAA PTS). All Interagency Practical Tests incorporate the FAA Commercial Practical Test Standards as an integral part of the Interagency Practical Test, except where the procurement document requires higher standards. (In the case of procurement that requires airline transport pilot qualifications, the FAA Airline Pilot Practical Test Standards will apply.) The Inspector Pilot will evaluate all aspects of a pilot's performance, whether a task was specifically asked for or not. The Inspector Pilot may ask the pilot to perform any task identified in the appropriate FAA Practical Test Standards as well as the Interagency Practical Test Standards (appropriate for the approval sought). Besides the initial seasonal check rides, additional check rides may be performed at the discretion of the Forest Service.
- C. Airspace Restrictions: Temporary Flight Restrictions (TFRs) and Notices to Airmen (NOTAM) shall be coordinated through the appropriate dispatch centers and the Geographic Area Coordination Centers (FSM 5715), following the procedures established in the *Interagency Airspace Coordination Guide*. (<http://www.fs.fed.us/r6/fire/aviation/airspace/web/guide/index.html>).
- D. Military Airspace Coordination: shall be in accordance with the *Interagency Airspace Coordination Guide* and coordinated through GACC.
- E. Airtankers//SEATS/Scoopers/Aerial Supervision
  - 1. Retardant/Suppressant Operations:

- a. Retardant mixing will adhere to all Manufactures' recommendations in the mixing of their product. Procedures for required retardant samples to be sent to Missoula Technical Development Center will be adhered to.
- b. Airtankers in Region 5 shall drop retardant/suppressants only 30-minutes before official sunrise to 30-minutes after official sunset.
- c. Airtankers and Leadplanes/ASM in Region 5 are not necessarily assigned to a specific incident, but rather, may be diverted to any incident as priority dictates.
- d. Airtankers and Leadplanes/ASM will use the flight-following frequency and/or Automated Flight Following System (AFF) assigned by local dispatch centers and will use the same check-in procedures (normally every 15-minutes unless prearranged) as delineated in the *Regional Mobilization Guide*.
- e. An Air Tactical Group Supervisor is required for complex aviation operations (FSM 5716.32).
- f. Modular Airborne Fire Fighting System (MAFFS) is designed for use in military C130 aircraft. This system is capable of delivering 3,000 gallons of retardant. Washington Office (WO), Boise is directly responsible for the MAFFS Program.
- g. Contracting of multi-engine airtankers is done by the NIFC contracting group in Boise, Idaho. Inspection and approval of pilots and airtankers is the responsibility of the National Fixed Wing Specialist and the Maintenance Specialist/Aircraft Inspector respectively. However, designated Regional Pilot Inspectors and Maintenance Inspectors may be called upon to provide assistance throughout the contract periods.
- h. Single-Engine Airtanker (SEAT): The use of single-engine airtankers (SEATs) is limited to those airtankers based in the vicinity of FS protected lands under the "closest forces" concept. The use of single-engine airtankers on FS incidents may supplement, but not substitute for, planned coverage by FS and cooperators multi-engine airtankers (FSM 5713. 44).
- i. Other large Aircraft and Amphibious Aircraft (Scoopers) Mobilization and use of Large Airtankers and Scoopers (DC-10, DC-7, Martin Mars, CL-215 and CL-415 are addressed in 28.2.12 in the California Mobilization Guide and updated each year. The National Martin Mars Operations Plan is posted on the GACC websites.
- j. Airtanker bases are located throughout the State and provide interagency support. Bases are managed by either the Forest Service, CALFIRE, or jointly. The Forest Service has identified six airtanker bases as full service bases for initial attack and large fire support. These six bases provide the backbone to maintain an initial attack capability to any of the eighteen National Forests. The Forest Service has also identified four-reload bases. The bases are identified and staffed to supplement the capacity of the full service bases when necessary to support extended attack or large fires. Airtanker bases on which Forest Service personnel and / or aircraft operate will have a qualified Air Tanker Base Manager assigned to manage it. Predicated on the airtanker base configuration

and unique characteristics the assigned ATBM will determine the qualifications of the second person identified in the IABOG, and have this person on scene prior to any airtanker loading operation. The type of qualifications may include Parking Tender, Ramp Manager, etc. Neither of these personnel need be Forest Service, but must be qualified in accordance with Forest Service policy.

- k. Management of the reload bases is performed by the closest Forests. Just as with airtanker themselves, reload base activation is NOT a unit or Incident Management team prerogative. Activation of reload bases is the responsibility of the appropriate Geographical Area Coordination Center (GACC) the GACC will activate the base through the host forest.

Full-Service Base	Host Forest	Reload Base	Host Forest
Redding	SHF	Siskiyou	KNF
Fresno	SNF	Stockton	STF
Porterville	SQF	Bishop	INF
San Bernardino	BDF	Santa Maria	LPF
Lancaster (FOX)	ANF		
Chester	LNF		

The Region will continue to use the Interagency Airtanker Base Operations Guide (IATBOG) as direction. Biennial Airtanker Base reviews will be conducted by the Regional Airtanker Base Specialists.

- E. Project Aviation Safety Plans (PASP): Any activity involving aircraft or aviation resources also becomes an aviation project. Employees must contact local aviation managers prior to planning any aviation activity. Involvement of local aviation personnel is necessary at the earliest possible planning stage. Employees will review applicable aviation and safety plans before planning aviation projects. Reoccurring aviation projects that have been identified in the Forest aviation plan, such as snow surveys or annual Helitack training do not require a separate PASP approval each time they are initiated. An initial approved PASP as an appendix to the Forest Aviation Plan will suffice.
- F. End Product Contract: A means of procuring a service for a site and time specific event, (such as spray, dusting, application of fertilizers, prescribed burning, and so forth), where the contractor is self sufficient to perform the full extent of the specified service by whatever means the contractor deems most appropriate. (no aviation project plan is required)
- G. Special Project: The RAO or delegated official will review special aviation project plans and recommend approval by the Line Officer of projects, which are outside the scope of those covered by the Forest/Unit Aviation Operations and Safety Plan. Contact the RAO in determining this need.
- H. Aviation Training: All non-fire aviation agency training requirements are listed by position and training requirements by going to Interagency Aviation Training at: [www.iat.gov](http://www.iat.gov) Interagency Aviation Training does not replace National Wildfire Coordination Group (NWCG) training requirements. Individuals qualified in fire positions under NWCG PMS 310-1 are not required to take duplicate training under IAT, unless

specified by NWCG. Individuals holding a current certification under the Incident Qualification and Certification System (a performance based system) are also qualified to perform equivalent non-fire/resource aviation project positions under IAT guidelines and do not require additional IAT identified training

Non-Fire Aviation users and/or managers, in addition to those positions with specific training requirements should consider the following training:

- a. A-101 Aviation Safety
  - b. A-105 Aviation Life Support Equipment
  - c. A-106 Aviation Mishap Reporting
  - d. A-108 Preflight Checklist and Briefing/Debriefing
  - e. A-110 Aviation Transportation of Hazardous Materials (if involved in transport of hazardous materials)
  - f. materials)
  - g. A-113 Crash Survival
- I. Fixed-Wing Manager For other than scheduled airline service flights, a Fixed-Wing Manager (sometimes referred as Chief Of Party) will be designated for all passenger airplane flights. The unit scheduling the flight will do this designation. On those flights with only one passenger, that passenger will become the Fixed-Wing Manager. When a flight manager, such as a mission coordinator is already assigned, a Fixed-Wing Manager will not need to be designated.
1. Individuals designated as Fixed-Wing Managers shall have received on-line training at [www.iat.gov](http://www.iat.gov) to performing Fixed-Wing manager duties A FS pilot may be designated as Fixed-Wing Manager. It is also recommended that each Fixed-Wing Manager have a copy of: NFES 1373 *Interagency Aviation User Pocket Guide*, and NFES 1399 *Five Steps To A Safe Flight*.
    - a. Fixed-Wing Managers duties and responsibilities are also found in FSH 5709.16 and Chapter 60 of the *National Interagency Mobilization Guide*.
- J. Dispatching:
1. Interagency Aircraft Mishap Response Actions: In the event that a FS owned, leased or contracted aircraft is determined to be overdue (30-minutes after ETA at destination, or if 2 successive periodic checks are not made) the dispatcher will follow procedures in the Aircraft Mishap Response Plan (Aircraft Crash, Search, and Rescue Guide).
  2. Flight Following: Flight following shall be in accordance with *Regional and National Mobilization Guides*. Lat/Longs will be reported in degrees, and decimal minutes.

3. Flight Request (Administrative): Prior to submitting an “administrative” flight request, a completed “Flight Request/Justification for Administrative Use of Aircraft” (Form FS 5700-10) and “Travel Cost Comparison Worksheet” (Form FS 5700-11) shall be provided to the appropriate dispatch center (FSM 5711.2 and FSH 5709.16).
  4. Flight Plans: All FS flights will be on a FS or FAA Flight Plan. The appropriate dispatch center shall be notified of any flight plan changes.
  5. Ordering Flights: All FS flights shall be ordered through the appropriate dispatch/coordination center.
  6. Search and Rescue (Wilderness). In the interest of public safety, Forest Supervisors shall authorize the initial flight for medical, or rescue aircraft missions in wilderness areas in Region 5. The advance approval for initial missions in wilderness is only applicable to life-threatening emergencies in which speed is critical. Subsequent flights will require a separate Forest Supervisor approval.
- K. Free-Fall Delivery (Airplanes): Airplanes are restricted to dropping of items specifically designed for free-fall, such as standard FS message droppers; when it is necessary to establish contact with ground personnel in the absence of adequate communication by other means. Use of free-fall items, such as message droppers from detection aircraft, shall be done by personnel who have received training in the procedures and with aircraft at least 500 feet above ground level (AGL). All other free-fall or paracargo dropping from airplanes will be done by a qualified smokejumper spotter and with aircraft approved for cargo dropping.
- L. Hazard Maps:
1. Each Unit will maintain a current flight hazard map: Copies of this map shall be available and displayed for use at each location where flight planning, flight tracking, aircraft dispatch, or flight mission briefings occur. Examples of locations are; dispatch offices, permanent aircraft bases, temporary helibases, or special project sites. The Regions Geographical Information System (GIS) provided maps should be utilized if possible. A flight hazard layer should be built which depicts the local hazards. Forest/Unit aerial hazard maps need to be reviewed and approved annually by the FAO/UAO.
  2. Particular attention shall be placed on hazards in the approach and/or takeoff patterns of heliports, helispots or airstrips; and lines, which cross drainages. Examples include transmission lines, wires and cables; television translators, microwave stations, and towers. Medical facilities with landing areas or heliports should be shown on the hazard map. Those with air ambulance capability should also be indicated.
  3. Airports, landing strips, heliports, maintained helispots, known avoidance areas, specific flight hazards, MTRs, and restricted areas should be indicated.
  4. Temporary hazards shall be marked and noted with legal information, such as name of contact, radio frequency, legal location, dates and/or time in effect.

5. All personnel are responsible for reporting aerial hazards to the UAO as the designated point-of-contact for inclusion of information on the hazard map.
6. Hazard maps shall be updated annually. Each map will include the date it was created and/or updated and standard symbology.
7. Aircraft/project managers shall review flight hazard maps prior to initiating low-level flight operations, such as spray projects.

M. Hazardous Materials (HazMat) Transport:

1. HazMat is a commonly used term for hazardous materials including explosives, compressed gases, flammable liquids and solids, oxidizers, poisons, corrosives, and radioactive materials that have been classified by the Department of Transportation (DOT) to require special containers, specific labeling, and special handling for transportation. The FS, along with the Department of the Interior (DOI), and several states, is party to Exemption DOT-E 9198, which allows aircraft transportation of hazardous materials in accordance with the *Aviation Transport of Hazardous Materials Guide*. This guide provides description, as well as required procedures for aircraft transportation, of HazMat items commonly used in resource management activities. Refer to FSM 5714.2, the Exemption, and the Guide for more specific requirements.
  - a. In addition to other HazMat handling requirements, Chapter 9 of the *Aviation Transport of Hazardous Materials Guide* specifies that "Irritants such as bear repellent or tear gas, carried within the cabin of the aircraft, must be carried in a separate sealed container." Missoula Technology and Development Center (MTDC) recommend's the use of a vented container with foam liner in its information FS pamphlet "*Safety Containers for Transporting Bear Repellent Spray Canisters in Vehicles.*"
  - b. Such items are treated as weapons by airport security if passengers attempt to board scheduled airlines with them in possession.

N. Helicopter Operations: Compliance with the Interagency Helicopter Operations Guide IHOG [www.nifc.gov/ihog](http://www.nifc.gov/ihog) is agency policy for all helicopter operations. This guide provides compressive direction for every phase of helicopter operations and management. In addition to IHOG Region five helicopter operations will include:

1. Aircraft doors Unless dictated by the mission, all doors will remain on the aircraft and closed.
2. Free-Fall Delivery. For helicopter free-fall delivery refer to Chapter 11 of the *Interagency Helicopter Operations Guide* (IHOG). The HOS will be responsible for certifying individuals conducting helicopter free-fall delivery.
3. Initial Attack and Fire Support Transport. A helicopter manager will supervise initial flight to a fire when the passengers are other than trained helitack. During fire support, personnel qualified in helicopter use will supervise the operation at each helicopter-landing site.

4. Night Operations. Helicopter operations in Region 5 shall be conducted only from 30-minutes before official sunrise to 30-minutes after official sunset, except as described in FSM 5716.2. Other agencies that have approved Night Operations may operate on joint command fires as long as such agency maintains operational control.
5. Projects. A qualified helicopter manager will supervise project helicopter operations. The Forest Helicopter Manager must be consulted early in the project planning stage. If there is no local Helicopter Manager or acting, contact the FAO or Regional HOS.
6. Rappel/Cargo Letdown. Helicopter missions involving rappel/cargo letdown operations shall be conducted in accordance with the *Interagency Helicopter Rappel Guide* (IHRG). The HOS will be responsible for approving operating plans for those units conducting helicopter rappel/cargo letdown operations.
7. Rope Assisted Deployment (RADS) Helicopter missions involving RADS operations shall be conducted in accordance with the Forest Service Rope Assisted Deployment Guide (2009). The HOS will be responsible for approving operating plans for those units conducting helicopter RADS operations.
8. Hoist or Short Haul Operations It is permissible to utilize cooperators aircraft for the purpose of extracting injured personnel in inaccessible areas by hoist or short haul aircraft. It should be noted that medical evacuation plans should not be based solely on these aircraft. Often time's aircraft availability or environmental conditions such as high winds, smoke inversions and fog or mechanical incidents can limit there use. It's recommended that Incident Management Teams (IMT) and Forest have alternative plans identified for the extraction of personnel. If an IMT or Forest has identified hoist or short haul in there evacuation plans, a risk assessment shall be completed prior to implementation and discussed by the Incident Commander and the Line Officer. Criteria shall be developed by the IMT or Forest outlining when this tool shall be utilized. This tool should not be utilized out of convenience; the injury should dictate the evacuation urgency. Law Enforcement's Shorthaul program is exempted from this as they do have an approved shorthaul program.
9. Special Projects. Consult the FAO early in the planning stage for assistance. For helicopter timber sales, provide date and location information to the FAO and the local dispatch center.
- 10 Wilderness Areas Helicopter use in wilderness areas must first be approved for fire, project, or emergency situations according to each specific Wilderness Plan. Longline operations require a risk assessment, including consideration of other delivery methods before use. It is recommended to use the risk assessment process outlined in Chapter 3 of the Interagency Helicopter Operations Guide (IHOG). The risk assessment should be conducted by those individuals best qualified by training and experience to evaluate a proposed flight or operation. This assessment should be signed at the appropriate level as identified in Chart 3-2, of Chapter 3 of the IHOG. Longline operations are classified as helicopter landings in some wilderness areas and require approval before use. If wilderness considerations conflict with the IHOG helispot construction guidelines then a

detailed Risk Assessment needs to be done to mitigate the hazard. This may include not doing the mission or changing the helispot location.

11 Helicopter Base Reviews. Biennial Base reviews will be conducted by the Regional Office in accordance with the Interagency Helicopter Operations Guide. To achieve the maximum degree of safety and efficiency, these reviews will place a special emphasis on trend monitoring and then applying these results in proficiency drills at each review. All finding will be reported to the Managing Line Officer, Regional Aviation Safety Officer and the Regional Fire Director.

- O. Low-Level Flight (Airplane): Low-level (below 500 feet) flight is prohibited except for: operations approved by FSM 5716.3.
- P. Night Flying/Operations: Use only multi-engine aircraft for night flights. Pilots flying night missions shall not land at an airport or heliport unless it meets Federal Aviation Administration (FAA) lighting standards (FSM 5716.2).
1. Single-engine aircraft flights at night may be authorized by the controlling dispatcher only for ferry when:
    - a. Requested by the pilot.
    - b. No persons other than pilot(s) are aboard.
    - c. The flight is conducted in accordance with 14 CFR Part 91.
    - d. Agency flight and duty limitations are observed.
  2. Notwithstanding the FAA definition of night in 14 CFR Part 1; for operational purpose within Region 5, night shall mean: 30-minutes after official sunset to 30-minutes before official sunrise, based on local time of appropriate sunrise/sunset tables nearest to the planned destination.
  3. The following FS operations in Region 5 are authorized to be conducted only from 30-minutes before official sunrise to 30-minutes after official sunset:
    - a. Single-engine aircraft missions, other than ferry flights.
    - b. Dropping of retardant/suppressants.
- Q. Non-FS Approved Aircraft:
1. Planned Flights. The authorization of non-FS approved aircraft for transportation of FS employees allows for transporting only those employees intimately involved with cooperator projects. This limits FS use of cooperator aircraft to personnel whose direct on-site presence is required.
  2. Line and staff officers determining that FS employees cannot use existing approved aircraft and also need to be transported in a cooperator's or third party aircraft, shall observe the following:

- a. Allow adequate advance notice and approval.
- b. Confirm cooperator's willingness to fly non-revenue FS employees.
- c. Contact the Forest Aviation Officer (FAO) to request regional aviation management to inspect and/or authorize both the aircraft and pilot in accordance with FSM 5712.14 and FSM 5713.43.
- d. The requesting unit shall pay all expenses incurred while approving the aircraft and pilot.
- e. Plan the flight through normal dispatch channels.
- f. Authorization will be contingent upon providing a level of safety identified by applicable FSM 5700 standards. This includes:
  - FS employees participating in helicopter flights must wear the PPE as required by this plan.
  - Low-level flights in airplanes are not authorized.
  - Notwithstanding FSM 5713.52 (Unplanned Flights), when FS employees find it necessary to fly with other groups or individuals within Region 5, authorization shall be requested in accordance with the procedures above.

R. Passengers (Non-Federal):

1. The Regional Forester has the authority to approve non-federal passengers on official government flights.
2. When a decision to approve/disapprove a flight request does not meet the criteria in FSM 5716.4 or the decision maker is unclear regarding any aspect of the request, the request should be elevated to the Regional Forester for resolution.
3. The following passengers (FSM 5710.5) are approved for transport aboard FS owned, leased, rented, chartered, or contracted aircraft:
  - a. Cooperator wildland fire fighters
  - b. Essential aircraft test flight technicians
  - c. Essential personnel responding to an emergency

S. Point-to-Point Flights: Forest Service and Aviation Management Director (AMD) do not inspect point-to-point only aircraft. These aircraft are not approved for special mission use. They will be issued a yellow card valid for 2-years, which also identifies aircraft that are authorized for use. Pilots will also be issued a yellow card valid for 1-year that identifies the vendor and the aircraft type if they do not already possess a FS or AMD pilot qualification card. These cards are issued by FS Aviation Unit Check pilots.

T. Safety

1. Interagency Aircraft Mishap Response Plan. This plan will be updated annually for posting in each dispatch center. The FAO is responsible for local supplementation of the plan.
2. Passenger Briefings. It is the pilot's responsibility to ensure that a passenger safety is provided. If not given, the Flight Manager (Fixed or Helicopter) should request this briefing or other information before each flight.
3. Shoulder Harness/Seat Belts. All front seat occupants shall wear shoulder harness and seat belts. All occupants shall wear seat belts for takeoffs and landings, and as directed by the PIC.
4. Smoking. Smoking is prohibited aboard and within 50 feet of an aircraft or flammable/chemical storage area (FSH 5709.16).
5. Unsafe Conditions. All employees have the responsibility to initiate action to stop any unsafe aviation operation (FSM 5720.45.2). Anyone may refuse or curtail a flight, or operation when an unsafe condition may exist. Any safety concern should be documented on a SafeCom and forwarded through agency channels. The *Pacific Southwest Region, Aviation Mishap Prevention Plan* provides regional practices and procedures on reporting safety concerns.

U. Smokejumper Operations:

1. Smokejumper operations in Region 5 will be in accordance with *Smokejumper Operations Guide* (ISMOG).
2. Refer to the *Regional Mobilization Guide* for smokejumper or paracargo requests.

## **AIRCRAFT MAINTENANCE AND INSPECTIONS**

### **Chapter 4**

#### **4.1. Procedures**

The Forest Service primarily relies on FAA maintenance, inspection and certifications standards for all basic aircraft, additional equipment and alterations. These are minimum standards, based on the needs of the FS, higher or more robust standards can be imposed to assure the airworthiness of aircraft the FS operates. This can be in the form of a later FAA certification requirement that is above and beyond what was needed for initial FAA certification of an aircraft, additional equipment or an alteration because of special mission needs or additional risk mitigation. These standards, which might come through agency Safety Systems Reviews will be incorporated and implemented through policy documents for fleet aircraft or put into practice through contract specifications for contract aircraft. Collaborative efforts with interagency partners (ex: CalFire, LA County,) have produced cooperator airworthiness standards that will be required for cooperator aircraft that are used by the Forest Service. Because portions of the Forest Service fleet and cooperator aircraft are former military which are not FAA certificated, an equivalent standard for those aircraft shall be acceptable. Standards to inspect aircraft, both contract and Cooperator can be found in the USFS Aircraft Inspection Guide Handbook (2006) non contracted aircraft are spelled out in the chapter and will be followed until the 5709.16 Aviation Administration and Flight Operations Handbook is complete and addresses this issue.

- A. FS Owned Aircraft. All maintenance on FS owned aircraft will be performed by a facility that complies with 14 CFR Part 145 standards. Aircraft will be maintained in accordance with 14 CFR Parts 39, 43 and 91 or equivalent standards approved by the National Aviation Maintenance Manager (FSH 5709.16, 41.1). Dependent upon the type of operation (VFR, VFR Night, IFR, etc) to be conducted, aircraft must meet the instrument and equipment requirements in 14 CFR Part 91.205. In order to assure the Working Capital Fund (WCF) fleet is maintained to the highest standards possible, Region 5 will operate in accordance with the following procedures:
1. All discrepancies will be logged on Form FS 5700E. Aircraft times shall be kept up to date in the aircraft maintenance log. Pilots who complete a page shall total the times and carry them over to the next page.
  2. Pilots shall write up all airworthiness and operational mission item discrepancies at the end of each flight. Write-ups will be concise and descriptive, identifying necessary parameters to aid in trouble-shooting discrepancies. Pilots shall initial and date each write-up.
  3. Pilots need to exercise discretion on items that are not airworthiness or essential operational mission items. These discrepancies will be discussed with the Aircraft and Powerplant (A&P) Mechanic/Inspector or Avionics Inspectors before entering them on the FS 5700E.
  4. Pilots will review each write-up with the A&P Mechanic Inspector or Avionics Inspector as soon as practical.
  5. The pilot and A&P Mechanic Inspector or Avionics Inspector will jointly determine if the item can be deferred. Once the decision to defer the item is made, it will be transferred to the Delayed Discrepancy List on the cover of FS 5700E.

6. The Maintenance File Copy (white page) shall remain in the log and will be pulled by the AMI after all discrepancies are specifically addressed in the corrective action column. The copy shall be filed by the AMI and retained for 24-months. The Aircraft Copy (yellow page) will remain in the log kept with the aircraft. Completed logs will be given to the Aircraft Maintenance Inspector (AMI), who will prepare a replacement Aircraft Maintenance Log for the aircraft.
7. SAFECOMS will be prepared and submitted for review by the RASM.
- B. Vendor Aircraft. All maintenance on vendor aircraft will be in accordance with contract specifications. When any non-scheduled maintenance or repairs are performed due to mechanical or equipment deficiencies, a government AMI and the CO shall be notified for return-to contract approval, before the aircraft performs under the contract. A SafeCom must be submitted within 24 hours to the appropriate Regional Aviation Safety Office.
- C. Non Fire Aircraft Cooperator Inspection Standards

Standards for Interagency Fire Use are clearly stated above. The following defines those minimum standards for non-fire cooperator helicopter operations.

Cooperator agreements for all aviation services provided to the Forest Service by other agencies and cooperators must specify levels of operational standards and safety comparable to those required of contractors.

Each intended use may present different requirements for the situation. As a minimum, USFS aviation policy requirements must be met for the safety of USFS personnel involved in cooperator agency helicopter operations. Inspections Standards are found in FSH 5709.16 Chapter 40 and the USDA Forest Service Aircraft Inspection Handbook.

D. Pilot Standards

Can be found in 5709 16.11.22 Flight Operations

USDA Forest Service Helicopter and Fixed wing Inspector pilots and Maintenance Inspectors are available at the following locations.

Redding Regional Aviation Group  
6101 Airport Road  
Redding, CA 96002  
530-226-2740

Lancaster Regional Aviation Group  
4503 W. William Barnes Avenue  
Lancaster, CA 93536  
661-723-2584

Regional Aviation Group  
3237 Peacekeeper Way  
McClellan CA 95652  
916-640-1000

## **SEARCH AND RESCUE**

### **Chapter 5**

#### **5.1 General**

- A. Persons. The County Sheriff or Coast Guard is responsible for search and rescue of overdue or missing persons. Pursuant to 16 USC 575, The Secretary of Agriculture is authorized to incur such expenses as may be necessary in searching for persons lost within the National Forests or to provide transportation to persons seriously ill, injured or who die within the National Forests to the nearest place where the sick or injured person(s) may be transferred to interested parties or local authorities.
- B. Forest Service owned, contracted, or leased aircraft shall not be used in SAR operations outside of our own agency mission (assisting our own employees) unless approved by the Forest Aviation Officer (FAO) and/or Forest Dispatch. The only exception would be if a pilot and aircraft were released from contract obligation and the requesting agency assumes responsibility (Note: Refer to specific contract). The CO or COR may decline any such requests for release of an aircraft from contract if the flight is not in the interest of the FS. The contractor or contractor's representative may also decline any requests for release.

#### **5.2 Procedures**

- A. Personnel. All SAR helicopter operations involving FS personnel shall be managed by a qualified Helicopter Manager (IHOG Chapter 2). The only exception is when the agency is utilizing other government agency or military aircraft, and the provider of the aircraft is also providing the helicopter and/or helibase management services, such as, flight following, loading/unloading of personnel/cargo, external load operations, etc. and the aircraft and pilot is approved by the RAO. Only minimum essential (Authorized Passengers) personnel will be allowed aboard SAR aircraft (media, political officials, and family members are not considered essential to the mission).
- B. Flight Following. Forest Service flight following of SAR aviation operations will take place either through the appropriate ECC or other agencies. Flight following shall be accomplished as per FS regulations. If the ECC is not used for flight following then the ECC will be notified of the mission, area of mission, frequencies, date and time frame of the mission.
- C. Personal Protective Equipment. PPE will be worn as required by this plan. Exemptions are listed in Chapter 16 of the IHOG. Personal Floatation Devices (PFDs) are required to be worn by all occupants when conducting overwater SAR operations.
- D. Survival Equipment. There must be sufficient survival equipment suitable for the environment onboard SAR aircraft to sustain life of all occupants for 72-hours.
- E. Aircraft /Pilot Qualifications. FS, contractor, and cooperator aircraft used to fly FS personnel must be flown by pilots who meet agency standards and possess a current Interagency Pilot Qualification Card or letter of authorization. Use of other aircraft requires acceptance of that agency's pilot qualifications if operating under a current

MOU. Aircraft and pilots not meeting these guidelines must be approved by the appropriate RAO. (see IHOG Chapter 17 Search & Rescue Operations Page 17-2)

- F. Use of Military Helicopters. National Guard helicopters must be approved for FS use. They will have a letter on board each helicopter stating that they are approved for FS use. All FS rules and procedures apply when FS employees are involved (PPE, flight following, etc). Regular Army helicopters can be used, but only with prior approval from the RAO and only on a case-by-case basis.
- G. Wilderness Areas. In the interest of public safety, Forest Supervisors shall authorize the initial flight for medical, or rescue aircraft missions in wilderness areas. The advanced approval for initial missions in wilderness is only applicable to life-threatening emergencies in which speed is critical. Subsequent flights will require a separate Forest Supervisor approval.
- H. Landing Areas (Helicopter). Use of helispots must be in accordance with IHOG requirements.
- I. Altitude. A minimum operational flight altitude of 500 feet above the terrain must be maintained except for takeoffs and landings.
- J. Night. Search and rescue operations are only authorized for Forest Service use, between 30-minutes before official sunrise to 30-minutes after official sunset.
- K. Load Calculations and Manifests. When utilizing aircraft other than military, load calculations and manifests are required. When utilizing a military aircraft, use of the Performance Planning Card (PPC) is acceptable along with a manifest. Load calculations will be made prior to flight. It is the responsibility of the pilot, however FS personnel must ensure this is done. A copy of the manifest and load calculation is kept on the ground until the flight is terminated. Passenger changes need to be documented.
- L. Briefing Requirements. As a minimum the following areas will be discussed with all flight participants prior to each mission.
  - 1. Risk Management
  - 2. Personnel Responsibilities/Authorities
  - 3. Flight/Duty Limitations
  - 4. Flight Plan/Flight Following/Communications
  - 5. Load Calculations/Manifests
  - 6. Pilot/Aircraft Data Card
  - 7. Personal Protective Equipment
  - 8. Survival Equipment

9. Weather

10. External Load Procedures

11. Landing Areas

12. HazMat Procedures

13. Mishap Notification Procedures

14. *Five Steps To A Safe Flight (Form FS 5700-16)*

Aircraft Hazards	Fire Extinguisher
Seat Belt & Harness	Fuel & Electrical Shut-off
ELT & Survival Kit	Oxygen Equipment
First Aid Kit	Emergency Egress
Gear & Cargo Security	Smoking

15. Twelve Aviation Watch Out Situations.

**APPENDIX 1**  
**Sierra Nevada Adaptive Management Project (SNAMP)**  
**Aviation Safety Plan**

The following document defines the Project Aviation Safety Plan for SNAMP in accordance with FSM 5711.1.

1. **Supervision.** The Project Aviation Manager for the duration of the project is the Lancaster Aviation Unit Manger/Supervisory Pilot, John Litton at 661-400-2083. The Field Aviation Operations Manger/Pilot at Mariposa, California, is Jim Irving at 661-335-2571.
2. **Project Name and Objectives.** The Sierra Nevada Adaptive Management Project (SNAMP) is a multi-year cooperative effort between the Forest Service and the University of California to study the impact of Forest Service fire management activities on the wildlife, forest health, and water of the Sierra Nevada Range.
3. **Justification.** SNAMP requires the monitoring of the Pacific Fisher through the use of telemetry collars tracked by aircraft on a daily basis. The Pacific Southwest Regional Aviation Group was assigned the task of providing aviation support by the Regional Office when it was determined that the cost of using outside aviation resources was prohibitive.
4. **Project Dates.** The project is ongoing and scheduled to end in 2013. The flight schedule requires daily surveillance and tracking activities.
5. **Location.** The Pacific Fisher study area extends from Yosemite National Park south to the Kings River drainage east of Fresno, California. Hazard maps of the area are provided by the Sierra National Forest.
6. **Projected Cost of Aviation Resources.** This federal flight operation is budgeted annually by the Regional Office. Projected annual flight hours range from 600 to 800 hours per year.
7. **Aircraft and Operating Location.** The primary aircraft is a government-owned Cessna 185 single-engine aircraft, tail number N4704A. The base of operations is Mariposa, California. Call-when-needed backup vendors include The John Ostrat Company, and Mt Lassen Aviation. Government-owned backup aircraft are available from Region 6 and Region 2.
8. **Pilots.** The primary full-time government pilot is Jim Irving. Backup government pilot is John Litton. The vendor pilots approved for this special mission operation are Jan Ostrat of the John Ostrat Company and Dan English of Mt Lassen Aviation.
9. **Participants.** University of California personnel responsible for the operation of the on-board tracking equipment are assigned, trained, and managed by Dr. Rick Sweitzer, Field Biologist for the project.
10. **Flight Following and Emergency Rescue.** All aircraft have Automated Flight Following (AFF) equipment installed. Daily flight following is coordinated with the Sierra National Forest. Point-to-point flights out of the local work area are flight planned and

coordinated with the Sierra National Forest, the appropriate GACC, and the Lancaster Aviation Unit Manager. In the event of an accident, the initial rescue effort will be the responsibility of the Sierra National Forest Dispatch Office in accordance with local and regional directives.

- 11. Aerial Hazard Analysis.** Flight operations associated with SNAMP are normally not required below 500'agl. Hazard maps are available from the Sierra National Forest. TFR coordination occurs between the pilot, the Sierra National Forest Dispatch Office, and the airborne entities within the TFR.
- 12. Protective Clothing/Equipment.** A standard survival kit, equipped for the terrain, will be onboard each aircraft used. Flight personnel will wear appropriate clothing for the terrain and weather conditions to be encountered. Additional specialized Personal Protective Equipment (PPE) is required only for special operations below 500' AGL.
- 13. Weight and Balance.** The mission pilot is responsible for the daily calculation and loading of the aircraft. The number of personnel onboard the aircraft are provided to the Sierra National Forest Dispatch Office by phone or aircraft radio for each flight.
- 14. Risk/Hazard Assessment.** SNAMP flight operations are limited to day VFR conditions, normally above 500' agl. The flight operations and maneuvering required for wildlife tracking will be in accordance with FAA Part 91 and Forest Service directives. Mission flight training and wildlife tracking goals will be the responsibility of the Lancaster Aviation Unit Manager and the Project Field Biologist.

## **APPENDIX 2 LAW ENFORCEMENT**

### **A.2.1 General**

- A. The Regional Aviation Officer (RAO) recognizes and supports Law Enforcement & Investigations (LEI) aviation operations as an integral part of the overall program management of the regional aviation program. It further recognizes the complexities of LEI's missions with regard to its numerous interfaces and mandated requirements to work with other federal, state, and county aviation programs.
  
- B. The R-5 Special Agent in Charge (SAC) is the official responsible for the R-5 LEI aviation program management, and coordination with the R-5 RAO.

### **A.2.2 Procedures**

#### A. Coordination:

- 1. The RAO and SAC shall annually meet with the Regional LEI Aviation Working Group to discuss and review aviation policy & procedures, mitigate problems or conflicts, review & evaluate existing programs, and new LEI aviation proposals.
  
- 2. The LEI Chairman of the LEI Aviation Working Group will serve as the SAC's liaison with the RAO's aviation staff representatives.
  
- 3. The RAO or his/her designated representative will frequently keep the SAC and his/her designated aviation representative current on both regional and national aviation policies, and procedures for dissemination to the LEI aviation managers in the field.
  
- 4. The RAO or his/her designated representative will be responsible for providing training opportunities for LEI aviation managers.
  
- 5. It will be the responsibility of the SAC and his/her designated aviation representative to maintain accountability of LEI aviation personnel qualifications, currency, aviation information exchange, and personnel availability.
  
- 6. The (Zone) Patrol Commander or their respective Forest Patrol Captain's will coordinate with each Forest Aviation Officer (FAO) for LEI aviation planning, procedures, and operations.
  
- 7. The LEI Aviation Managers will ensure operational compliance with both national and regional aviation policies and procedures.
  
- 8. The SAC will annually provide the RAO with a complete LEI Aviation Summary Report. This summary report will encompass all LEI aviation missions that were conducted over National Forest lands in Region 5.

### **A.2.3 Ordering Aircraft**

- A. It is the responsibility of the (Zone) Patrol Commander, Forest Patrol Captain or designated LEO/Helicopter Manager to coordinate with their respective Forest Dispatch Center Manager and FAO when ordering aircraft for law enforcement missions.
- B. The Project Helicopter Manager will ensure that all ordered aircraft and pilots meet the national and regional standards and qualifications before the mission.
- C. It is the responsibility of the LEI Project Helicopter Manager to conduct aviation planning, maximize operational safety, and supervision of operations.

### **A.2.4 Operations**

LEI aviation operations shall be conducted within approved National and Regional aviation policies and procedures as outlined in the FSM 5700, National Aviation Plan, Regional Aviation Plan, IHOG, and the FSH 5309.11 – Law Enforcement Handbook, Chapter 50 Actions & Procedures – Aviation, Section 52.

- A. Covert Operations: Law Enforcement covert aviation missions will require approval from the SAC. The SAC or his/her designated representative will brief the RAO on a need to know basis, and in a reasonable and timely manner when applicable. Forest Service aviation policies and procedures will apply to all planned covert aviation missions.
- B. Aerial Surveillance Operations: Forest Service owned, contracted, leased, or cooperator agency aircraft may be called upon in exigent or emergency circumstances for law enforcement aerial surveillance missions. These missions will require (Zone) Patrol Commander or Assistant Special Agent in Charge, and Pilot in Command, or Helicopter Manager's approval.

Examples of exigent missions may encompass, but are not limited to:

1. Tracking and/or apprehension of a felony or serious misdemeanor suspect.
  2. Collection and/or preservation of critical or crucial crime scene evidence.
  3. Search & Rescue incident where the loss of life and/or environmental conditions or circumstances warrant an immediate public safety response..
  4. Consideration will be given toward pilot skill, aircraft capability, and security. Upon completion of any "Aerial Surveillance or Rescue Mission", the requesting Officer or Agent will report to the approving official on the outcome of the mission.
- C. Aerial Collection & Preservation of Evidence: For investigative purposes, it is the responsibility of the SAC or his/her designated person to ensure that all initial attack aerial supervisors photograph and document all initial attacks on the scene of human caused incidents. In part, it is the responsibility of the initial attack aerial supervisor to

initiate law enforcement investigative services on all suspected human caused incidents.

- D. **Load Calculations & Manifest:** Load Calculations & Manifest will be required for all LEI aviation missions. When utilizing military aircraft, the Performance Planning Card is acceptable along with the load manifest. The Load Calculation & Manifest will remain at a predetermined location on the ground (H-Base or ICP) until the flight is terminated.
- E. **SAFECOM Reporting:** In the event of a pilot or aircraft related incident, it is the responsibility of the supervising aviation Law Enforcement Officer or Special Agent to promptly fill out, post and forward a completed "SAFECOM" incident report to the respective Patrol Captain and FAO. This includes incidents that may occur with other agency pilots and/or aircraft that are transporting USFS/LEI personnel.

### **A.2.5 Personnel**

- A. **LEI Aviation Supervision:** All LEI aviation operations involving personnel transport, heli-base management services, short haul operations, external load operations, and flight following shall be conducted by either a qualified on site Project Helicopter Manager, Short Haul Spotter. Hoist operations will be supervised by a qualified Hoist Helicopter Manager and Hoist Spotter.
- B. **LEI Aviation Training:**
  - 1. The Regional Helicopter Operation Specialist will provide the basic biennial LEI Helicopter Manager Workshop. It is the responsibility of the SAC or the SAC's designated aviation representative to ensure that Trainee Helicopter Managers meet the qualifications and standards of performance as outlined in the Law Enforcement HEMG Task Book requirements.
  - 2. Training for Short Haul and Hoist personnel will be carried out by qualified instructor personnel. A list of trained and qualified personnel will be provided to the RAO, SAC and his/her aviation representative, annually or at the completion of each training session.
- C. **Personal Protective Equipment (PPE):**
  - 1. Standard PPE will be worn at all times with the exception and criteria as outlined in Chapter 9, IHOG, and FSH 5309.11, 52-11 – Personal Protective Equipment. The on site supervising Law Enforcement Officer or Special Agent will have the authority to make that determination.
  - 2. Law Enforcement Officers or Special Agents will carry a holstered duty weapon as a PPE uniform component on Forest Service owned, contracted, or leased aircraft by the Forest Service. Long guns shall be unloaded and under the control of the Officer or Agent. It is the responsibility of the supervising Law Enforcement Officer or Special Agent to brief the pilot regarding the presence of firearms carried aboard the aircraft.

3. Officers or Agents will not carry any type of “aerosol restraint” device or containers on any Forest Service owned, contracted, or leased aircraft. It is the responsibility of the Project Manager / HEMG to inspect officers or agents for “aerosol restraint” devices. Refer to: IHOG chapter 16 section 11 3-C, Aviation Hazardous Material Guide.
- D. Prisoner Transport: Refer to IHOG, chapter 16, page 16.5 section X sub-C.
- E. Canine Transport: Refer to IHOG, chapter 16, page 16.5 section X sub-B. A qualified canine officer will secure transportation of canines to a hard point in rear compartment of the aircraft, and under strict restraint and control by the canine officer. The pilot will be briefed and inspect the canine restraint before transporting the canine.

### **A.2.6 Flight Following and Communications**

- A. Check in Flight Procedures: All LEI aviation operations involving the transportation of Forest Service personnel will adhere to flight following “Check-In” procedures as outlined in FSH 5709.16, Section 33. LEI aviation operations for “Check-In” may use a pre-agreed upon Coded Grid Map Reference Location, Satellite, Local “Point to Point”, Geographic locations, and or Longitude/Latitude locations.
- B. Communications:
  1. Forest Service flight following protocol will apply when Law Enforcement Officers or Special Agents are being transported in any outside agency cooperator aircraft. LEI personnel may utilize cooperator dispatch services for flight following communications, however, notification will be made to the Forest Service dispatch center at the beginning & end of the mission, or any deviation from the original flight plan.
  2. Cooperators or other agencies conducting routine law enforcement missions or search & rescue missions over National Forest lands will be encouraged to contact Forest Service Dispatch Center.
  3. Law Enforcement missions and air space management in conjunction with fire related missions over National Forest lands with agency owned, contracted, or leased aircraft will be controlled and prioritized by the Forest Dispatch Center and/or on scene Air Attack Supervisor.

### **A.2.7 Aircraft and Pilot Qualifications**

- A. Aircraft:
  1. Any FS, contracted, cooperator, or agency-leased aircraft may be used to fly Law Enforcement Officers or Special Agents, and/or outside agency personnel that are deemed essential to the LEI mission. The aircraft & pilot will meet Forest Service standards required for a current Interagency Aircraft Qualification Card for that specific aircraft.
  2. The use of other law enforcement agency aircraft such as cooperator aircraft, other federal/state agency owned or leased aircraft will require the FS interagency carding and approval process, or by a current and approved Local Operating

Agreement or MOU with the agency. Aircraft not meeting these guidelines must be approved in advance by the RAO on a case-by-case base.

3. Civil Air Patrol, refer to Memorandum of Understanding between the Drug Enforcement Administration, the U.S. Forest Service, the Civil Air Patrol, INC., and the U.S. Air Force.

B. Military Aircraft:

1. The use of military aircraft will require approval from the RAO in conjunction with a current Local Operating Agreement or current MOU.
2. All military aircraft meeting these requirements must have a copy of the Forest Service MOU, MOA, or Letter of Authorization on board with the aircraft & pilot.

C. Pilots:

1. Forest Service, agency contracted, or agency approved cooperator pilots may be used to fly Law Enforcement Officers or Special Agents that meet the standards and qualifications required for a current Interagency Pilot Qualification Card.
2. Military pilots will be approved by the RAO with either a letter of approval, Interagency Pilot Qualification Card, or by a current MOU.

- D. Unapproved Aircraft/Pilot: In certain exigent or emergency situations, and or covert operations, the supervising Law Enforcement Officer or Special Agent may authorize LEI personnel to ride in an unapproved aircraft on a case-by-case basis. The Supervising Officer or Agent must complete a "SAFECOM" within 24 hours after the completion of the mission. The "SAFECOM" will be submitted to the Supervisory Special Agent, Patrol Captain, and to the respective FAO. A review copy will be forwarded to the SAC and RAO. Refer to IHOG, chapter 16, page 16.3, part V, section 3.

### **A.2.8 Security of Aviation Operations**

- A. Homeland Security: It is the responsibility of the RAO and SAC to develop an overall regional strategy for the security of FS owned, contracted, or leased aircraft facilities that are under the direct control of the agency. At the forest level, the respective FAO and Patrol Captain will develop a Security Plan for aircraft that is under the direct control of the Forest Service.
- B. High Use Operational Periods: During high use aviation operational periods, the RAO or FAO may request from the SAC or Patrol Commander extra law enforcement security services at airports, or heli-bases where FS owned, contracted, or leased aircraft stored.

- C. Safety & Security for Fire Fighter Aviation: When determined by an initial attack Incident Commander, Heli-Attack Captain, or Air Attack Supervisors that fire fighters or aircraft are potentially in jeopardy from a hostile or life-threatening encounter, the supervisor is to promptly request for law enforcement assistance and security.
- D. Safety & Security for Law Enforcement: It is the responsibility of the supervising Law Enforcement Officer or Special Agent to maximize safety and security of aviation operations. Law Enforcement missions utilizing FS owned, contracted or leased aircraft for operations requiring remote heli-spot landing, long lining, or insertion spots will require an over flight surveillance and evaluation of the site to avoid any potential hostile encounter. At no time will an aircraft or fuel truck be left unattended during law enforcement operations.

#### **A.2.9 Draw Down Assistance**

During peak aviation operational periods, the RAO may request from the SAC, qualified LEI personnel to serve as C.W.N. Helicopter Managers or Aircraft Project Managers to temporarily fill critically needed positions throughout the region or nation.

#### **A.2.10 Appendix**

- Law Enforcement Handbook  
FSH 5309.11, Chapter 50
- Pacific Southwest Short Haul Guide
- Pacific Southwest Hoist Operations Guide
- Interagency Helicopter Operations Guide
- Chapter 16, Law Enforcement Operations
- LEI HEMG Trainee Task Book
- Military Aircraft, Letters of Authorization
- Cooperative Helicopter Operation JT1354-01

## APPENDIX 3

### FOREST HEALTH PROTECTION

#### A.3.1 General

The goal of Forest Health Protection (FHP) Aviation in the Pacific Southwest Region is to provide safe, efficient, and economic use of aircraft in conjunction with land and resource management activities.

**Safety is paramount in any aviation activity undertaken. No one shall start or continue a mission when he or she believes it to be unsafe.**

The major aircraft uses of FHP will involve mortality detection surveys, special vegetation surveys and insect suppression and eradication. Only aircraft and pilots inspected and/or approved ("carded") by the Regional Aviation Officer (RAO) or an authorized staff member, or Department of Interior Aviation Management (AMD, formerly OAS, Office of Aircraft Services) will be used to transport government personnel. The pilot and aircraft must be carded for the type of mission flown (for example: "recon", "point-to-point", "less than 500 feet above ground level (AGL)", etc.).

#### A.3.2 Procedures

##### A. Types of Missions

1. Annual Aerial Detection Survey: Annual detection surveys are flown over approximately 40 million acres of forested land in California. The purpose of the surveys is to map tree mortality, defoliation and other damage. Mapping is usually performed between 1000 feet and 3,000 feet AGL. No mapping will be performed below 500 feet AGL. Types of aircraft used will be predominantly fixed-wing, although helicopters may have limited use. Primarily 'call when needed (CWN)' aircraft will be used. CWN aircraft are obtained through the appropriate geographic area coordination center (GACC). On occasion, aircraft may be obtained through cooperative agreement or contracting, according to Regional policies. Aircraft carrying government employees for survey missions will be flight followed. Both survey and point-to-point missions will contact the responsible dispatch office prior to take-off and immediately upon landing.
2. Special Surveys: As required, special vegetation surveys are flown in addition to the annual detection surveys. In 2003, for example, 19 million acres were flown in California for sudden oak death (SOD) survey, 8 million acres for pinyon pine mortality, and one million acres for aspen location. Aircraft will be obtained and utilized as described above. Special surveys, like the ones flown for sudden oak death and pinyon mortality, will often be flown over large areas of private land.
3. Insect Suppression or Eradication Project Work: Aircraft may be used for aerial application of chemicals in support of insect suppression activities. Types of aircraft used will be fixed wing and/or helicopters. All suppression aircraft will be ordered through the Regional contracting process. Flight following will be required for all aircraft. All suppression or eradication aviation projects will have a project aviation safety plan reviewed by the RAO, the appropriate NEPA documentation and an approved spill plan.

##### B. Organization and Staffing

1. Regional Aviation Officer (RAO). See Chapter 1.

2. Regional Aviation Safety Manager (RASM). See Chapter 1.
3. FHP Unit Aviation Officer (FHP UAO). As designated jointly by the R5 FHP Group Leader and the Regional Aviation Officer, the FHP UAO is the contact for aviation management information for FHP employees and Forest coordinators.
  - a. Qualifications: The FHP UAO shall meet Interagency Aviation Training Guide (IAT) requirements for "Unit Aviation Manager".
  - b. FHP UAO Duties:
    - (1) Updates the FHP Chapter in the Regional Aviation Operations and Safety Plan.
    - (2) Seeks advice from and informs the Regional Aviation Group on FHP aviation activities.
    - (3) Keeps the R5 FHP Director informed on FHP aviation activities.
    - (4) Provides information on aviation safety and training opportunities to FHP staff and associated personnel.
    - (5) Reviews FHP Project Aviation Safety Plans.
  - c. Training
    - (1) Meets IAT Guide for "Unit Aviation Manager"
    - (2) Meets IAT Guide for "Fixed-wing Manager – Special Use"
4. FHP Aerial Survey Program Manager (ASPM). The Aerial Survey Program Manager will be designated to oversee all aerial survey activities associated with the survey missions of FHP. The role of the ASPM will be to provide overall direction to the survey program.
  - a. Qualifications: The ASPM will be familiar with the insects, diseases and forest vegetation of the Pacific Southwest Region. The ASPM must be knowledgeable in natural resource management sufficient to be conversant with resource specialists, entomologists, and plant pathologists on evaluation of applicable forest pest problems. The ASPM must possess knowledge of geographic information system (GIS) applications and analyses to facilitate annual reporting and respond to special information requests. The ASPM will also have a working knowledge of the Region 5 Aerial Survey Program and the capabilities/limitations of the aircraft used in the annual aerial detection survey.
  - b. ASPM Duties: Ensures that all aerial survey activities within assigned area of responsibility are operated in accordance with Forest Service Manual and Handbook direction, Health & Safety Code, Federal Aviation Regulations and the contents of this Plan.
    - (1) Oversees the FHP annual aerial detection program
    - (2) Oversees special surveys conducted as needed for emerging forest health issues
    - (3) Establishes survey standards for annual and special surveys
    - (4) Conducts aerial surveys
    - (5) Assimilates and reports survey results for Region 5 to the WO and cooperators
    - (6) Supervises employees as needed to accomplish aerial surveys and associated field work on the ground
    - (7) Participates in national and local informational and planning meetings with multi-agency representatives and cooperators
    - (8) Immediately reports aircraft accident/incidents to the RASM and FHP UAO.
    - (9) Participates in budget planning/tracking for all survey-related activities

## c. Training

- (1) Meets IAT Guide for “Fixed-wing Manager – Special Use”, Project Aviation Manager, and Supervisor.
- (2) Informs FHP staff of aviation training opportunities.
- (3) Conducts FHP Fly-Ins or training events to calibrate aerial surveyors and improve their proficiency
- (4) Provides less formal, on-the-job training as needed to cooperators and individual forest representatives during actual surveys
- (5) Trains field crews in navigation, host/disease recognition, sampling protocols

5. Aerial Surveyor: Most aerial surveyors are National Forest employees. They sketchmap insect defoliation, tree mortality, disease effects, weather damage, etc. by degree of intensity and/or tree species. They estimate area size, numbers of trees, host types and identifies cause. All aerial surveyors will meet minimum IAT training requirements as an air crewmember and preferably will be qualified as fixed-wing manager.
6. Chief-of-Party (COP)/Helicopter Manager (HM). See Chapter 2.
7. Passengers: Additional passengers may participate on flights for training purposes or to assist with the aerial detection process. All passengers will meet IAT air crewmember training requirements, including non-Federal cooperators.
8. FHP Group Leader: The group leader will meet IAT requirements as supervisor.
9. SPF Assistant Director. The assistant director of State & Private Forestry will meet IAT requirements as supervisor.

## C. Aircraft, Time-keeping and payment.

1. No aircraft will be used unless expressly authorized (“carded”) with either a FS 5700-21 Airplane Data Record or FS 5700-21A Helicopter Data Record (signed by a designated aircraft inspector), or provided a letter of authorization by the RAO. All missions will have a COP and all helicopter missions will have a HM in charge of the mission.
2. Experience has shown that the best survey aircraft have the following features:
  - a. excellent forward and lateral visibility,
  - b. good performance in mountainous, high altitude flying,
  - c. ample cabin space for a mapping crew of two or three, survey equipment and maps, and
  - d. a cruising range of not less than five hours. Aircraft performance for typical aerial survey missions include:
    - (1) ability to safely fly at slow speeds (100 knots) 1000 feet AGL up to altitudes of 10,000 feet,
    - (2) a cruising speed of over 120 knots to fly point-to-point efficiently within the Region, and
    - (3) being fuel efficient.
3. Timekeeping Procedures. The COP will be responsible for logging start and stop times for each flight and ensuring flight information is correct. The COP will also be

responsible for entering flight information into the ABS system for payment. **A copy of all ABS entries will be immediately forwarded to the FHP ASPM.**

#### D. Dispatch Procedures and Flight Following

1. Briefings and Orientation. The National Forest or appropriate administrative area will be notified prior to the actual survey flight. This is usually done through the GACC, dispatcher. The responsible Chief-of-Party will call the GACC dispatcher a day or two prior to the planned starting date. Daily morning notification to the GACC dispatcher will be required. During this notification, the COP will be provided with air space management information. The COP will provide the dispatcher with planned area of flight, approximate times and possible alternate areas. The COP will perform a daily briefing of the survey crew and pilot covering anticipated areas of survey, hazard mitigation, and flight following procedures. The pilot will maintain charts, sectionals and airport facility directories appropriate for area being surveyed.

Flight Following. The COP will make necessary weather checks and determine feasibility of survey operations. Because of the subtleties of color changes caused by forest insects to tree foliage, adequate sunlight is important to detection. Forest dispatchers will be notified of flight routing by the COP. The pilot will check weather conditions and NOTAMs for all planned survey areas. In addition, posted hazard maps, location of control zones, ground navigational stations, MOA's, MTR's and other known confliction will be noted. Point-to-point flights will have a FAA flight plan or flight following by the appropriate land management agency.

The COP or pilot will check in with the appropriate dispatch office prior to flights. Flight following will consist of radio check-ins with lat/long coordinates or by landmarks. Positive flight following will be by radio communication with dispatch, usually every 15 minutes. Automated flight following (AFF) will be used. Landing/takeoff locations and times will be manually reported to the dispatch center doing the flight following for the mission and the designated location monitoring the automated flight following system.

#### E. Conducting Surveys.

See FS publication FHTET 00-01:

A Guide to Conducting Aerial Detection Surveys

1. The majority of aerial survey flight time in Region 5 is the grid pattern method. Using this survey technique the aircraft usually flies cardinal directions following section lines on the map. The surveyor in the front seat is responsible for detection directly in front and approximately two miles out from the right side of the flight line. If available, the second surveyor sits in the left rear seat and is responsible for two miles out from the left side of the flight line. Each surveyor's duty is to detect, locate on the ground, locate on the sketch map, draw and label the polygons on the map (eg. tree species, damaging agents, number of trees and/or intensity) and continue to orient themselves. At airspeed of 120 miles per hour, each surveyor observes approximately four square miles every minute. This procedure requires concentration and communication between surveyors and the pilot.

The other type of flight pattern is contour flying. This pattern is flown in areas of relatively steep, well-defined topography. The aircraft is flown generally parallel to the drainages rather than across them. In steep, wide canyons, the canyon is entered somewhere between the ridge on the left of the aircraft and the drainage on the right; escape routes in this scenario are to drainage right. With safety as the

number one priority, the aircraft will fly above ridges whenever practical to accomplish mission objectives.

#### F. Safety

##### ***SAFETY MUST ALWAYS SUPERCEDE THE URGENCY OF ANY MISSION !***

1. Protective Clothing/Equipment. Headsets will be worn by crew members on all flights. Helicopter operations require PPE in accordance with IHOG.
  - a. When special projects involving hazardous chemicals are planned an approved spill plan is required. A list of poison control centers, local physicians, local emergency medical treatment facilities should be included. These local medical facilities should also be alerted to the spray project.
2. Load Calculations and Weight and Balance. Load calculations and weight and balance limits will be confirmed during the pre-project briefing. The pilot is responsible for overseeing the proper loading of the aircraft.
3. Aviation Hazard Maps. Current aviation sectionals will be maintained and reviewed for flight hazards. Pilots should alert the flight crew when in the vicinity of Military Training Routes (MTRs) and of the direction they may expect to see conflicting traffic. An aviation hazard map for a Forest should be available in the dispatch center.
4. Aircraft Emergency Response Plan. National Forests maintain Aircraft Crash, Search and Rescue Plans. Agencies providing flight following will be responsible for activating the appropriate agency resources. In the event of an injury or fatality the RASM, Forest Dispatcher and FAO will be notified and the appropriate person in charge will notify family members. In addition the FHP UAO shall be notified. **Phone numbers of the FHP UAO and other FHP staff is included in Appendix.**
5. SAFECOM. Incident/Hazard/Maintenance Deficiency Reporting will be in accordance with the R5 Aviation Mishap Prevention Plan and FSM 5720. Aviation incidents shall be posted on the SAFECOM website form within 24 hours of the incident. The SAFECOM site is [www.safecom.gov](http://www.safecom.gov). If a serious potential for an aircraft accident was involved, an immediate telephone report should be made to the RASM, the FAO and Forest Dispatch.
6. Training. Aerial surveyors are encouraged to attend the Region 5 FHP preseason conformity training, if available. In addition, surveyors who are expected to fly FHP missions as a part of their annual duties will attend a week-long FHP AS2M training (Aerial Survey Aviation Safety and Management). Inexperienced sketchmappers will only fly as a trainee with an experienced sketchmapper until the FHP aerial surveyor taskbook is completed. Taskbooks are available from the national FHP aerial safety manager. Mission COP shall have completed the fixed-wing manager training. The COP shall review annually the following:
  - a. R5 Aviation Operations and Safety Plan
  - b. Prior year's Accident Analysis developed by the RASM.
  - c. Prior year's Mishap/Incident information developed by the RASM.
  - d. FHP Job Hazard Analysis (JHA) (Appendix 5)
  - e. Standard Aviation orders.

7. Job Hazard Analysis. Concurrent hazard analysis is the responsibility of all flight crew members throughout the project. The aerial hazard map depicts known hazards. Pilots will reconnoiter an unknown area prior to descending to lower altitudes. The COP will cancel or terminate operations when conditions are not within acceptable safety standards, or when a question exists regarding the safety of equipment or its application. Some risks remain and are mitigated as indicated in the FHP Aviation Job Hazard Analysis included in Appendix .

#### **FOREST HEALTH PROTECTION AVIATION DIRECTORY**

<b>Name</b>	<b>Title</b>	<b>Work</b>	<b>Home/Cell</b>
Julie Lydick	R5 SPF Assistant Director	707-562-8921	
Lisa Fischer	R5 FHP Group Leader	530-759-1748	
Jeff Mai	FHP Aviation Safety Manager	970 295-5878	C 970 372-7493
Zachary Heath	R5 FHP Unit Aviation Officer, Aerial Survey Program Manager	530 759-1751	
Jeff Moore	R5 FHP Aerial Surveyor	530-759-1753	
Cindy Snyder	FHP Aerial Surveyor	530-226-2437	
Bill Woodruff	FHP Aerial Surveyor	530-252-6680	

**FHP APPENDIX  
FHP AVIATION JOB HAZARD ANALYSIS**

<b>Phase</b>	<b>Hazard/ Risk ID</b>	<b>Risk Assessment</b>	<b>Control Options</b>	<b>Residual Risk</b>
All	Improper Aircraft Maintenance	Very High	<p>Aircraft maintenance inspections and repairs shall be made in accordance with appropriate Federal Aviation Regulations, Directives of the Administrator of FAA, and the recommendations of the manufacturer.</p> <p>Appropriate aircraft maintenance records shall be kept with the aircraft and shall be open to the inspection of the Contracting Officer upon request.</p> <p>Windows shall be kept clean at all times. Cracked and/or excessively crazed windows shall be replaced.</p> <p>Additional maintenance shall be performed as outlined in the pertaining Forest Service Contract for Aircraft Services.</p>	Low
All	Severe weather	High	Check with local weather offices daily, fly only in clear weather when possible; file flight plans and/or maintain flight following.	Moderate
All	Inexperience	High	Conduct annual program reviews and safety sessions to fully familiarize personnel with standard policies and regulations. Pair inexperienced sketchmappers experienced sketchmappers until they are able to sketchmap.	Low
All	Sub-standard Aircraft performance Capability	High	Check pilot and aircraft qualification cards, maintain open communication with the Forest Aviation Group.	Low
All	Aircraft egress & ingress	Moderate	Do not approach aircraft without pilots knowledge and visual contact. Follow directions for entering and exiting aircraft on pilots' OK	Low

Phase	Hazard/ Risk ID	Risk Assessment	Control Options	Residual Risk
All	Inadequate flight following	Moderate	Contact dispatch offices, verify flight following frequencies and back-up frequencies. Verify proper operation of automated flight following system with radio checks.	Low
All	Mountainous flying	High	Hold daily pre-flight briefing sessions to discuss intended flight route and potential hazards. Maintain at least 500' AGL at all times. Avoid up-canyon flying. Check daily weather reports.	Moderate
All	Mid-Air Collision	High	<p>Sterile Cockpit procedure will be followed within 5 miles of airports and until clear of the runway. CTAF will be monitored within 10 miles of airports unless ATC requires otherwise.</p> <p>Sketchmappers will assist the pilot in visual acquisition of traffic conflicts.</p> <p>Situational awareness will be maintained for MTR and SUA's. The pilot will brief the crew when in the vicinity of this airspace and where possible traffic conflicts may be anticipated.</p> <p>Anti-collision and Landing lights will be displayed in flight to enhance aircraft visibility by others.</p>	Moderate

## APPENDIX 4 DEFINITIONS

### - A -

Aircraft. The term “aircraft” is used to refer to both airplanes and helicopters.

Aircraft Accident. An occurrence associated with the operation of an aircraft, which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Airtanker. An aircraft used for the dispensing of a substance (normally fire retardant or water) on a wildfire.

Aviation Mishap. Mishaps include aircraft accidents, incidents with potential, aircraft incidents, aviation hazards and aircraft maintenance deficiencies (see Mishap, Aviation).

### - C -

Call-When-Needed. A term used to identify the furnishing of services on an “as needed bases” or “intermittent use” in government procurement contracts. There is no guarantee the Government will place any orders and the vendor is not obligated to accept any orders. However, once an order is placed and the vendor takes steps to perform, both sides are bound by the terms and conditions of the contract.

Civil Aircraft. Aircraft other than public aircraft.

Cooperator Aircraft. An affiliated, military or other Government agency aircraft.

### - F -

Federal Aviation Regulations. Rules and regulations contained in Title 14 of the Code of Federal Regulations.

Flight Crewmember. A pilot, flight engineer, or flight navigator assigned to duty in an aircraft during flight time who holds a valid Federal Aviation Administration (FAA) Airman's Certificate and flight physical.

Fleet Aircraft. Aircraft bailed, owned, or leased by the Forest Service with intent to purchase.

Full Service Airtanker Base. Established bases that meet Interagency Airtanker Base Operations Guide Standards and staffing levels on a seasonal/daily basis.

### - G -

Government Aircraft. Aircraft owned, leased, contracted, rented, or chartered, and used by a Federal Government agency. Commercial airline aircraft operating on their scheduled routes are not government aircraft.

Government Agency Aircraft, Other. Aircraft of U.S. registry which are owned, leased or operated by a Government agency at the Federal, state or local levels other than Forest Service. This does not include "military aircraft," but does include bailed/loaned or excess/surplus military aircraft under the control of a Government agency. Foreign government aircraft are not included.

- H -

Hazard, Aviation. Any condition, act or set of circumstances that exposes an individual to unnecessary risk or harm during aviation operations.

- I -

Incident-With-Potential. An incident that narrowly misses being an accident and in which the circumstances indicate significant potential for substantial damage or serious injury. Final classification will be determined by the Forest Service, National Aviation Safety Manager.

- L -

Life-Threatening. A situation or occurrence of a serious nature, developing suddenly and unexpectedly and demanding immediate action to prevent loss of life.

- M -

Maintenance Deficiency. An equipment defect or failure which affects or could affect the safety of operations, or that causes an interruption to the services being performed.

Military Aircraft. An aircraft maintained and operated by an active or reserve component [all Reserve forces, as well as Army National Guard and Air National Guard] of the Department of Defense (DOD) or by any active or reserve component of the U.S. Coast Guard (USCG). All references to military aircraft include both DOD and USCG aircraft. The U.S. Government Manual describes the USCG as follows:

"The Coast Guard is a branch of the Armed Forces of the United States at all times and is a service within the Department of Transportation except when operating as part of the Navy in time of war or when the President directs."

Mission Use. The use of an aircraft that in itself constitutes discharge of official Forest Service responsibilities. Mission flights may be either routine or emergency, and may include such activities as leadplane, smokejumper/paracargo, aerial photography, mobilization or demobilization of emergency support resources, reconnaissance, survey, and project support. Mission flights do not include official travel to make speeches, attend conferences or meetings, or make routine site visits.

Mishap, Aviation. Mishaps include aircraft accidents, incidents-with-potential, aircraft incidents, aviation hazards and aircraft maintenance deficiencies (see Aviation Mishap).

Mountain Flying (Airplanes). Conducting flight operations that require special techniques including takeoffs and landings at locations with 5,000 feet above sea level or greater pressure altitudes, at temperature ranges above 75 degrees F, and/or limited and unimproved airstrips.

Mountain Flying (Helicopters). Conducting flight operations in mountainous terrain including pinnacle landings and approaches at varying elevations and pressure altitudes of over 5,000 feet above sea level at temperature ranges above 75 degrees F, and in areas of rugged peaks, deep canyons, cliffs, rock outcropping, steep slopes; including landing on mountain tops and confined areas surrounded by trees, brush, rocks, snow or ice.

- N -

Night. The time between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time.

- O -

Operational Control, Aircraft. The condition existing when an entity exercises authority over initiating, conducting or terminating a flight.

Operating Agency. An executive agency or any entity thereof using agency aircraft which it does not own.

Operator. Any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

- P -

Point-to-Point. Aircraft operations between any two geographic locations operationally suitable for take-off and landing (airport-to-airport).

Privately Owned Aircraft. Any aircraft piloted by a Forest Service employee on official business which has an FAA registration showing the Forest Service employee as an owner(s) or member of the club which owns the aircraft.

Public Aircraft. An aircraft used only for the United States government; or owned and operated (except for commercial purposes) or exclusively leased for at least 90 continuous days by a government (except the United States government), including a State, the District of Columbia, or a territory or possession of the United States, or political subdivision of the government, but does not include a government-owned aircraft transporting property for commercial purposes; or transporting passengers other than a) transporting (for other than commercial purposes) crewmembers or other persons aboard the aircraft whose presence is required to perform, or is associated with the performance of, a governmental function such as fire fighting, search and rescue, law enforcement, aeronautical research, or biological or geological resource management; or, b) transporting (for other than commercial purposes) persons aboard the aircraft if the aircraft is operated by the Armed Forces or an intelligence agency of the United States. An aircraft described in the preceding sentence shall, notwithstanding any limitation relating to use of the aircraft for commercial purposes, be considered to be a public aircraft for the purposes of this part without regard to whether the aircraft is operated by a unit of government on behalf of another unit of government, pursuant to a cost reimbursement agreement between such units of government, if the unit of government on whose behalf the operation is conducted certifies to the Administrator of the Federal Aviation Administration that the operation was necessary to respond to a significant and imminent threat to life or property (including natural resources) and that no service by a private operator was reasonably available to meet the threat. 49 U.S.C. 40102 (a) (37).

**- R -**

Reload Airtanker Base. Established bases that meet Interagency Airtanker Base Operations Guide Standards and opened only on an as needed basis.

**- S -**

Special Mission Aircraft. Aircraft approved for other than point-to-point only missions. Transportation is limited to personnel required to carry out the special mission of the aircraft.

**- V -**

Vendor. An operator being paid by the Forest Service for services.

## APPENDIX 5 ABBREVIATIONS

A&P	Airframe & Powerplant (Mechanic)
ACO	Administrative Contracting Officer
ACCO	Air Carrier/Commercial Operator
AGL	Above Ground Level
ALSE	Aviation Life Support Equipment
AMD	Aviation Management Director (formally OAS)
AMI	Aircraft Maintenance Inspector
ATGS	Air Tactical Group Supervisor
BOA	Basic Ordering Agreement
CFR	Code of Federal Regulations
CO	Contracting Officer
COP	Chief of Party
COR	Contracting Officer's Representative
CWN	Call when Needed (Contract)
DOI	Department of the Interior
DOD	Department of Defense
DOT	Department of Transportation
ECC	Emergency Command Center
ETA	Estimated Time of Arrival
F&AM	Fire & Aviation Management
FAA	Federal Aviation Administration
FAO	Forest Aviation Officer
FAR	Federal Aviation Regulations
FMO	Fire Management Officer
FS	Forest Service
FSDO	Flight Standards District Office
FSH	Forest Service Handbook
FSM	Forest Service Manual
FSS	Flight Service Station
GACC	Geographical Area Coordination Center
GIS	Geographical Information System
GPS	Global Positioning System
HAZMAT	Hazardous Material
HIP	Helicopter Inspector Pilot
HOS	Helicopter Operations Specialist
IFR	Instrument Flight Rules
IHOG	Interagency Helicopter Operations Guide
IMC	Instrument Meteorological Conditions
ISMOG	Interagency Smokejumper Operations Guide
LEI	Law Enforcement and Investigation
MAFFS	Mobile Airborne Fire Fighting System
MOU	Memorandum of Understanding
MSL	Mean Sea Level
MTDC	Missoula Technology & Development Center
NFES	National Fire Equipment Supplies
NICC	National Interagency Coordination Center
NIFC	National Interagency Fire Center
NOTAM	Notice to Airmen

NZ	North Zone
OAS	Office of Aircraft Services (now AMD)
PASP	Project Aviation Safety Plan
PFD	Personal Flootation Devices
PIC	Pilot in Command
PPC	Performance Planning Coordinator
PPE	Personal Protective Equipment
RAO	Regional Aviation Officer
RASM	Regional Aviation Safety Manager
SAC	Special Agent in Charge
SAFECOM	Aviation Safety Communiqué
SAR	Search and Rescue
SEAT	Single-Engine Airtanker
SLEO	Supervisory Law Enforcement Officer
SSA	Supervisory Special Agent
SZ	South Zone
TFR	Temporary Flight Restriction
UAO	Unit Aviation Officer
USC	United States Code
USCG	US Coast Guard
VFR	Visual Flight Rules
WO	Washington Office

## APPENDIX 6 REFERENCES

1. Procedural Publications. Forest Service employees are required to comply with the following documents:

Aerial Ignition Guide, Interagency	FSM 5703.4
Airspace Coordination Guide, Interagency	FSM 5715
Air Tactical Group Supervisor's Guide, Interagency	FSM 5706.1
Airtanker Base Operations Guide, Interagency	FSM 5706.1
Aviation Management	FSM 5700
Fireline Handbook	FSH 5109.32a
Flight Operations Handbook	FSH 5709.16
Helicopter Operations Guide, Interagency	FSM 5703.4
Helicopter Rappel Guide, Interagency	FSM 5703.4
Incident Business Management Handbook, Interagency	FSM 5109.34
Interagency Airtanker Base Operations Guide	NFES 2271
Leadplane Operations Guide, Interagency	FSM 5703.5
National Mobilization Guide, Interagency	FSM 5108
Transport of Hazardous Materials Guide, Aviation	FSM 5714.2
Smokejumper Operations Guide, Forest Service	
Smokejumper and Paracargo Handbook	FSH 5709.14
Smokejumper Training Guide, Interagency	FSH 5709.14, 14.1
Wildland Fire Qualifications Subsystem Guide	FSH 5109.17

2. Other Publications. Listed below are some additional interagency aviation guides that Forest Service employees may wish to consult. (Note: Some of these publications may be incorporated by Forest Service directives in the future, and would then move to the list above.)

Airtanker Base Directory, Interagency	NFES 2537
Aircraft Identification Guide	NFES 2393

Aviation Technical Assistance Directory, Interagency	NFES 2512
Aviation User Pocket Guide, Interagency	NFES 1373
Call When Needed Helicopters, Interagency	NFES 2168
Contract Information for: Airtanker, Helicopter, Large Transport, and Smokejumper Aircraft	NFES 2277
Helicopter Training Guide, Interagency	NFES 1261
Lot Acceptance, Quality Assurance & Field Quality Control of Fire Retardant Chemicals	NFES 1245
Military Use Handbook	NFES 2175
Retardant Base Planning Guide, Interagency	NFES 1259
Single Engine Air Tanker Operations Guide, Interagency	NFES 1844 Forms 1413