

## 12 – Aviation Operations/Resources

### Introduction

#### Purpose and Scope

Aviation managers are responsible for all aircraft missions. Policy and standards will ensure that aviation services are safe, cost effective, minimize risk, and benefit the agency and the public.

Aviation management provides a service for the customer, whether the customer is the user of public resources or an activity within the organization. Clear direction and good management practices can reduce risks inherent to aviation missions. Aviation program success increases with planning, applying standards, training, and commitment to safety for each mission.

The emphasis for any aviation mission is safety, minimizing risk, planning, supervision, and evaluation.

#### Organizational Responsibilities

**Office of Aircraft Services** – The Office of Aircraft Services (OAS) is responsible for aviation policy development, aircraft acquisition, and maintenance management within the agencies of the Department of the Interior (DOI); however, OAS has no operational responsibility. OAS also provides aviation safety program oversight and accident investigation, and aircraft and pilot inspection.

**BLM** – National Aviation Office (NAO) – NAO develops BLM policy, procedures, and standards, and maintains functional oversight and facilitates interagency coordination for all aviation activities. The principal goals are safety and cost-effectiveness. The NAO supports BLM activities and missions, including fire suppression, through risk management. Refer to *BLM Manual 9400* for aviation policy and guides. (Refer to *112 DM 12* for a list of responsibilities.)

**State/Regional Office** – A State/Regional Aviation Manager (S/RAM) is located in each state/regional office. S/RAMs implement aviation program objectives and directives to support the agency mission and state/region objectives. Several states/regions have additional support staff, aircraft dispatchers, and/or pilots assigned to support aircraft operations and to provide technical expertise. A state/regional aviation operations and management plan is required to outline the state/region's aviation program objectives and to identify state/region-specific policy and procedures.

**BLM** – Local Level – Unit Aviation Managers (UAMs) have the responsibility for aviation activities at the local level, including aviation mission planning, safety measures, supervision, and evaluation. UAMs assist Field Office Managers with risk assessment/management and cost analysis.

**NPS** – Organizational responsibility refer to *DO-60, RM-60*.

### Aviation Information Resources

Aviation reference guides and aids for agency aviation management are listed for policy, guidance, and specific procedural requirements.

*BLM* – 9400 Manual Appendix 1, in all cases DOI policy (Department Manuals [DMs], Operational Procedural Memoranda [OPMs], and BLM policy) will take precedence, *BLM Standard Operations Procedures, National Aviation Plan*.

*FWS* – *Service Manuel 330-339, Aviation Management*.

*NPS* – *RM-60 Aviation Management Reference Manual and IHOG*.

*USFS* – *FSM 5700, FSH 5709.11, 5709.14, 5709.16 and IHOG*.

In addition, safety alerts, instruction memoranda, information bulletins, incident reports, and other guidance or information are issued as needed.

An up-to-date library with aviation policy and procedural references will be maintained at all permanent aviation bases, dispatch, and aviation management offices.

## Aviation Safety

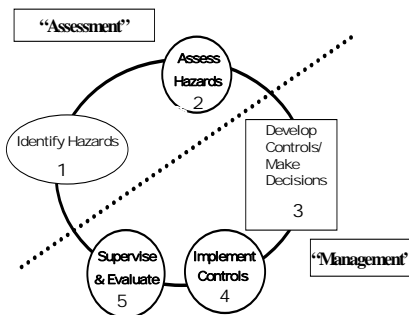
### Risk Assessment and Risk Management

The use of Risk Management will help to ensure a safe and successful operation. Risk is the probability that an event will occur. Assessing risk identifies the hazard, the associated risk, and places the hazard in relationship to the mission. A decision to conduct a mission requires weighing the risk against the benefit of the mission and deciding whether the risks are acceptable.

Aviation missions always have some degree of risk. The four sources of hazards are persons, material, environment, and management. Managing risk is a 5-step process:

- 1) **Identify hazards** associated with all specified and implied tasks for the mission.
- 2) **Assess hazards** to determine potential of occurrence and severity of consequences.
- 3) **Develop controls** to mitigate or remove risk, and make decisions based on accepting the least risk for the best benefit.
- 4) **Implement controls** - (1) education controls, (2) physical controls, and (3) avoidance controls.
- 5) **Supervise and evaluate** - enforce standards and continuously re-evaluate their effectiveness in reducing or removing risk. Ensure that controls are communicated, implemented, and enforced.

THE RISK MANAGEMENT PROCESS



**Aviation Watch Out Situations**

As part of the risk management process, each aviation manager and employee should ask the following questions to develop controls and make good decisions.

- Is this flight necessary?
- Who is in charge?
- Are all hazards identified and have you made them known?
- Should you stop the operation or flight due to change in:
  - Conditions?                      Weather?
  - Communications?              Turbulence?
  - Confusion?                        Personnel?
  - Conflicting Priorities?
- Is there a better way to do it?
- Are you driven by an overwhelming sense of urgency?
- Can you justify your actions?
- Are there other aircraft in the area?
- Do you have an escape route?
- Are any rules being broken?
- Are communications getting tense?
- Are you deviating from the assigned operation or flight?

This list is found in the *IRPG*.

**Mission Planning/Hazard Mitigation**

Pre-flight planning will reduce risks on any mission. Flight planning and scheduling require the following points be addressed:

- Completed and signed Aircraft Flight Request/Schedule or an Incident Resource Order
- Cost analysis
- Assessment and mitigation of hazards
- Selection of aircraft
- Scheduling of pilots and aircraft
- Pre-flight briefings and post-flight debriefings

### Aviation Safety Support

During high levels of aviation activity it is advisable to request an Aviation Safety Assistance Team (ASAT). An ASAT's purpose is to assist and review helicopter and/or fixed wing operations on ongoing wildland fires. They should operate under a delegation of authority from the appropriate State/Regional Aviation Manager(s). Formal written reports will be provided to the appropriate manager(s).

A team should consist of the following:

- Aviation Safety Manager
- Operations Technician (helicopter and/or fixed wing)
- Pilot Inspector
- Maintenance Inspector (optional)
- Avionics Inspector (optional)

### Aircraft and Pilot Carding

OAS/USFS are responsible for inspecting and approving all aircraft and pilots utilized by the agencies. State owned aircraft and state agency pilots may be approved by OAS and/or the USFS. These pilots are not required to carry a card; however, they must have in their possession an approval letter. The letter of authorization or Memorandum of Understanding is agency specific and valid only for each agency that is a signatory of it. With the exception of a life-threatening situation, no employee will fly with unapproved pilots or in unapproved aircraft.

The unit dispatcher or UAM (NPS – fixed wing/helicopter manager) is responsible for checking and verifying pilot and aircraft cards for mission planning and procurement. The employee is responsible for checking pilot and aircraft cards or letters of approval before the flight.

Only the agency issuing authority can suspend or revoke a card. However, any employee can suspend operations that they consider unsafe.

### Military or National Guard Aircraft and Pilots

The *Military Use Handbook (NFES 2175)* will be used when planning or conducting aviation operations involving regular military aircraft. Ordering military resources is done through NICC; National Guard resources are utilized through local or state MOUs.

### Aviation Safety Briefing

Every passenger must receive a briefing prior to each flight. The briefing is the responsibility of the Pilot in Command (PIC) but may be conducted by the pilot, flight manager, helicopter manager, fixed-wing base manager, or an individual with the required training and experience to conduct an aviation safety briefing. Refer to the *Incident Response Pocket Guide (IRPG) – Aviation User Checklist*. The briefing will be specific to the mission, and will include (but is not limited to) the following:

- Pilot's card – qualified and current for aircraft type and mission?
- Aircraft card – aircraft approved for mission?
- Flight Plan/Following – filed (FAA/Agency/Bureau)?
- Personnel Protective Equipment (PPE) – required for missions – available and worn by all passengers and pilot?
- Pilot briefed on mission objectives/parameters of flight and known flight hazards?
- Pilot briefing to passengers including:

- Aircraft approach and departure paths
- Seat belt – use and adjustment
- Smoking rules
- Fire extinguisher(s) – location and use
- Emergency exits – location and use
- Survival equipment – location and use
- ELT – location and use
- Other emergency procedures, i.e. fuel and electric shutoff
- Radio operations
- Equipment or tools – never store under seats while transporting passengers

### Aviation Hazard

An aviation hazard is any condition, act, or circumstance that compromises the safety of personnel engaged in aviation operations. All personnel are responsible for hazard identification and mitigation. This includes pilots, flight crew personnel, aviation managers, incident air operations personnel, and passengers. Aviation hazards include the following:

- Deviations from policy, procedures, regulations, and instructions
- Improper hazardous materials handling and/or transport
- Airspace conflicts/flight following deviation
- Deviation from planned operations
- Failure to utilize PPE or Aviation Life Support Equipment (ALSE)
- Failure to meet qualification standards or training requirements
- Extreme environmental conditions
- Improper ground operations
- Improper pilot procedures
- Fuel contamination
- Unsafe actions by pilot, air crew, passengers, or support personnel

Aviation hazards also exist in the form of wires, low-flying aircraft, and obstacles protruding beyond normal surface features. Each office will post, maintain, and annually update a “known aerial hazard map” for the local geographic area where aircraft are operated, regardless of agency jurisdiction. This map will be posted and used to brief flight crews.

### SAFECOM – Incident/Hazard/Maintenance Deficiency Reporting

The DOI and the USDA Forest Service have a common incident/hazard reporting form called a SAFECOM (Safety *Communiqué*).

Aviation managers are responsible for completion and transmittal of the form. Any individual (including contractors) with knowledge of an incident/hazard should complete a SAFECOM. The form is routed to the National Aviation Safety Manager and State/Regional Aviation Managers.

Notify USFS or OAS and DOI agency Aviation Safety Managers of any aircraft mishap involving damage or injury. Use the hot line – **1-888-464-7427** – or the most expeditious means possible. An electronic version of the SAFECOM form can be accessed at [www.OAS.gov](http://www.OAS.gov) or the Forest Service web page, <http://205.173.2.4>. A report will be forwarded by electronic mail or telefax to the State/Regional Aviation Manager within 72 hours after occurrence.

The objectives of the form are:

- To report any incident or potential incident that can or has caused an aviation-related hazard/incident/accident.
- To document reoccurring safety problems, aviation hazards and incidents.
- To perform trend analyses for changes in policy and procedures, identify areas needing training, etc.

The agency with operational control of the aircraft at the time of the hazard/incident/accident is responsible for completing the SAFECOM and submitting it through agency channels.

*USFS* – Reference *FSM 5720.45*: access through the Forest Service aviation web page. Reporting responsibilities for safety violations required by all employees. SAFECOMs can be accessed through Forest Service aviation web page.

### **Aircraft Incidents/Accidents**

**Incidents** – An aircraft “incident” results in very minor damage to the aircraft, which meets less than serious criteria or injury not requiring medical attention (first-aid only).

**Accidents** – The definition for aircraft “accident” is lengthy and technical. An investigation team will make the determination as to the classification between an incident, incident with potential, and an accident. In general, if an occurrence was more serious than those described under the definition of “incident” above, then the occurrence should be treated as an accident.

*BLM/FWS/NPS* – Aviation accidents are investigated in accordance with *352 Departmental Manual – Aviation Safety*, and National Transportation Safety Board (NTSB) regulations.

## **Helitack**

Helitack crews perform suppression and support operations to accomplish fire and resource management objectives.

**PPE Requirements** – As referenced in the *IHOG*, full PPE is required for all helicopter flights, including non-fire helicopter flights. Full PPE consists of an approved aviator flight helmet, aramid flight suit (or Nomex® shirt and pants), aramid or leather gloves and all-leather boots.

The only acceptable situation where a hard hat may be substituted for a flight helmet is. Passenger transportation during fire suppression operations between an established, managed helispot/helibase and an established, managed helispot/helibase.

### **Policy**

The *IHOG* serves as the standard for Interagency Fire Operations, and has been adopted/implemented by the BIA, BLM, and Forest Service.

*FWS* – The *IHOG* has been implemented on the basis of regional needs.

*NPS* – With the implementation of *NPS RM-60* the *IHOG* will become policy for all helicopter operations in the *NPS*. However, for non-interagency fire there will be a 24-month implementation period.

## Organization

*BLM* – The standard *BLM* exclusive-use helitack crew is a minimum of nine personnel (PFT supervisor, long-term assistant, long-term lead and six temporaries). As the need arises, each crew must be able to support and manage a call-when-needed (CWN) helicopter in addition to the exclusive-use helicopter.

*NPS* – *NPS* Exclusive Use Modules will consist of a minimum of 8 personnel.

*USFS* – Regions may establish minimum crew size and standards for their exclusive use helitack crews. Experience requirements for helicopter positions are listed in *FSH 5109.17, Chapter 40*.

## Operational Procedures

The *IHOG* specifies how helicopter operations should be conducted, whether in support of wildland fire or natural resource missions, and provides guidance for helitack and helicopter operations.

Required and recommended equipment for helitack crews and helicopters changes frequently. Consult the *IHOG* and the contract for requirements.

*BLM/NPS* – Exclusive use contract helicopter and helitack crews are controlled and dispatched locally by the administrative unit. At the discretion of the local Fire Management Officer, these helicopters may be made available for off unit or out of state assignment.

*USFS* – Initial attack exclusive use aircraft are contracted by each region, dispatched by the local administrative unit and may be available for off unit or out of region assignments, while others are National Exclusive Use.

## Communication

*BLM* – The helitack crew standard is one handheld programmable multi-channel FM radio per every 2-crew persons, and one multi-channel VHF-AM programmable radio in the primary helitack crew (chase) truck. It is highly recommended to have one handheld programmable multi-channel FM radio for each crewmember and one each multi-channel VHF-AM and FM programmable base station radio at each permanent helibase.

*USFS* – For every 2 persons, a multi-channel VHF-FM programmable radio is recommended as a minimum requirement.

## Transportation

Dedicated vehicles with adequate storage and security will be provided for helitack crews. The required GVW of the vehicle will be dependent upon helicopter type and the number of helitack crewmembers.

**BLM** – A standard BLM Helitack Support Vehicle may be ordered through the Equipment Development Unit at NIFC.

## Safety

A risk assessment will be made and appropriate mitigation action taken for all suppression and resource aviation missions. For information on the risk assessment and management, see the *IHOG*, Chapter 3.

## Training and Experience Requirements

**BLM** – All members will meet minimum fire qualifications as prescribed by the *NWCG 310-1* and *BLM Manual 9215*. The following chart establishes minimum experience and training requirements for BLM Exclusive-Use Fire Helicopter Crew Positions:

(BLM) POSITION <sup>1</sup>	MINIMUM PREREQUISITE EXPERIENCE <sup>2</sup>	MINIMUM REQUIRED TRAINING <sup>3</sup>	CURRENCY REQUIREMENTS
Fire Helicopter Crew Supervisor	1) One season <sup>4</sup> as an Assistant Fire Helicopter Crew Supervisor 2) ICT4 3) HEB2		RT-372 <sup>5</sup> , IAT Modules <sup>6</sup>
Assistant Fire Helicopter Crew Supervisor	1) One season as a Fire Helicopter Squad Leader 2) ICT4 3) HELB 4) HEB2 (T)	I-200, S-200, S-215, S-230, S-234, S-260, S-270, S-290, S-371, S-372, IAT Modules	RT-372, IAT Modules
Fire Helicopter Squad Leader	1) One season as a Fire Helicopter Crewmember 2) FFT1 3) ICT5	S-131, S-133, S-211, S-212, S-281,	S-271 Refresher <sup>7</sup>
Fire Helicopter Crewmember	1) One season as a Firefighter 2) FFT2 3) HECM Taskbook	I-100, S-130, S-190, S-271,	S-271 Refresher

<sup>1</sup> All Exclusive-Use Fire Helicopter positions require an arduous fitness rating.

<sup>2</sup> Minimum experience and qualifications required prior to performing in the Exclusive Use position. Each level must have met the experience requirements of the previous level(s).

<sup>3</sup> Minimum training required to perform in the position. Each level must have met the training requirements of the previous level(s).

<sup>4</sup> A “season” is continuous employment on a full-time wildland fire helicopter crew for a period of 90 days or more.

<sup>5</sup> After completing S-372, must attend Interagency Helicopter Manager Workshop (RT-372) every two years.



<sup>6</sup> Must attend IAT Modules as required by DOI for Helicopter Manager every three years.

<sup>7</sup> Must receive S-271 Refresher or serve as S-271 instructor every year.

*NOTE:* Requests for exceptions to these position standards must be submitted through the State Aviation Manager for approval by the National Aviation Office, Helicopter Program Leader.

*NPS* – Consult with National or Regional NPS Aviation Managers to determine NPS Exclusive Use position standards.

*USFS* – Reference to *FSH 5109.17 Chapter 40* and *IHOG* for Forest Service qualifications standards.

*NPS/USFS* – All members will meet minimum line qualifications as prescribed by the *NWCG 310-1*. The following chart establishes minimum experience and training requirements for USFS and NPS exclusive use Fire Helicopter Crew Positions (*IHOG* Chart 2-1). This chart is NPS/USFS specific.

POSITION	PREREQUISITES	<i>IHOG</i> TRAINING REQUIREMENTS <sup>1</sup>	JOB AIDS/CURRENCY REQUIREMENTS
Fire Helicopter Manager	One season <sup>2</sup> as an Assistant Fire Helicopter Manager, or Two seasons as a Lead Helicopter Crewmember;  Helibase Manager Type 2 (T); Type 4 Incident Commander;  Completion of Helicopter manager Job Task Book	Interagency Aviation Management and Safety (Recommended only); All courses required of subordinate positions below. Attendance at a Helicopter Manager Workshop is required prior to being qualified.	Biannual attendance at a Helicopter Manager Workshop;
Assistant Fire Helicopter Manager	Two seasons as a Helicopter Crewmember of Lead Crewmember, or Two seasons as a CWN Manager;  Type 4 Incident Commander;  Completion of Helicopter Manager Job Task Book	S-200; S-205; S-230; S-260; S-371; S-290; COR/PI	Biannual attendance at a Helicopter Manager Workshop;
Lead Helicopter Crewmember	One season as a Helicopter Crewmember; <sup>3</sup> Firefighter 2	S-201; S-211; S-212; <sup>4</sup>	Annual S-217 Helicopter Skills Refresher;
Helicopter Crewmember	One season as a Firefighter; Firefighter 2; Completion of Helicopter Crewmember Job Task Book	I-100; S-130; S-190; S-217	Annual S-217 Helicopter Skills Refresher;

<sup>1</sup> Each level must have met the training requirements of the previous level(s).

- <sup>2</sup> For exclusive-use helicopter crews, a season is continuous employment for a period of 90 days or more.
- <sup>3</sup> Sufficient aviation experience (for example, air tanker base, smokejumper, etc.) may substitute for helicopter crew experience, provided required training is completed.
- <sup>4</sup> It is recommended that the Lead Crewmember attend as many of the courses required for Assistant Manager as is feasible to lessen the training impact when individual becomes an Assistant Manager or Manager.

## Helicopter Rappel & Cargo Let-Down

### Policy

Any rappel or cargo let-down programs must be approved by the Directors, Fire and Aviation Management. All rappel and cargo let-down operations will follow the *Interagency Helicopter Rappel Guide (IHRG)*, as policy. Any exemption to the guide must be requested by the program through the State/Region for approval by the National Aviation Office. The objective is to standardize procedures and techniques that allow individuals or crews to be used for a variety of missions. To aid in this approach, methods are incorporated to cross train personnel in more than one rappel system and more than one specific helicopter type.

### Training and Qualifications

Each Spotter and Rappeller is certified by an approved Rappel Check Spotter.

Check Spotters are approved annually by the State/Regional Aviation Manager (S/RAM), OAS Training Specialist or Helicopter Operations Specialist. For more information on Rappeller initial training and certification, refer to *IHRG*.

### Equipment and Procedure Development Process

When a field user has a need for a new or improved piece of equipment and/or procedure, documentation of that need must be submitted to the appropriate Interagency Helicopter Operations (IHOPS) Working Group. It will be evaluated based on the objectives and the following criteria: critical safety, national focus, and priority.

An Aerial Attack Systems Specialist for the USFS or BLM National Helicopter Specialist for DOI must approve all equipment. Both of these positions are located at NIFC.

## Aerial Ignition

The *Interagency Aerial Ignition Guide (IAIG)* is policy for all aerial ignition activities. Any exemption to the *IAIG* must be requested through the State/Region for approval by the National Aviation Office.

## Airtankers

Airtankers are a national resource. Geographic areas administering these aircraft will make them available for initial attack or project fires on a priority basis. All airtanker services are obtained through the contracting process (except the MAFFS, which are Military Aviation Assets and used to supplement the contract fleet when needed).

The Interagency Airtanker Board (IATB), consisting of Forest Service, DOI, and states, is responsible for approving the contract airtanker fleet. Large airtankers are procured under a national interagency contract.

The management of these resources is governed by the requirements of the *DM, BLM Manual 9400*, and the *Interagency Airtanker Base Operations Guide (IATBOG)*. Airtankers are operated by commercial vendors in accordance with *FAR Part 137*.

*USFS* – Forest Service operates under *FSM 5703* and Grant of Exemption 392 as referenced in *FSM 5714*.

### Operational Principles

- Use retardant drops before an immediate need is recognized; pretreat according to expected fire behavior.
- Retardant dropped in the morning may still be effective in the afternoon.
- Build progressive retardant line.
- Use retardant drops to cool areas (reduce flame length), as necessary in support of ground forces.
- Be sure the line is clear of personnel prior to dropping retardant.
- Be alert for gaps in retardant lines.
- Expect fixed-wing vortices and rotor-wing down wash.
- Wildland fire can burn around, under, spot over, and with enough intensity, through retardant lines.
- Retardant drops should not be made within 300 feet of a waterway. Refer to *Interagency Leadplane Operations Guide (ILOG)*.

### Categories

Airtanker types are distinguished by their retardant load:

- **Type 1** – 3,000 gallons
- **Type 2** – 1,800 to 2,999 gallons
- **Type 3** – 800 to 1,799 gallons
- **Type 4** – 799 gallons (single engine airtankers)

### Qualifications

Type 1, 2, and 3 airtanker crews fall into two categories: initial attack rated, and initial attack candidates. Type 4 (SEAT) pilots are classified as Level 1 or Level 2; both may operate without aerial supervision. Aerial supervision is required for a Level 2 SEAT pilot when more than two aircraft are operating within the incident airspace.

**Initial Attack Qualified** – A crew may drop retardant upon arrival at a fire without aerial supervision. This does not negate the requirements for aerial supervision if ordering agency policies, terrain, or congested areas dictate otherwise.

**Initial Attack Candidate** – A crew that is acquiring the experience, training, and prerequisite drops – but in the interim requires aerial supervision.

### Tanker Bases & Reload Facilities

They may be contract or Force Account bases, and may be operated by the BLM, Forest Service, or states. Types of retardant (dry powder, liquid concentrate, etc.) will vary with locations.

Certain parameters for the operation of airtankers are agency-specific. For dispatch procedures and limitations, startup-cutoff times, specific requirements for Aerial Supervision Module (ASM1), Air Tactical Group Supervisor (ATGS) or Airtanker Coordinator (ATCO), refer to geographic area mobilization guides and the *Interagency Airtanker Base Operations Guide (IATBOG)*.

### **Airtanker Base Operations**

The *IATBOG* defines and standardizes operating procedures at all airtanker bases. It facilitates personnel exchange through standardization and provides a common interagency approach in the government's relationship with airtanker and retardant contractors. It provides special instructions for personnel at airtanker bases and can provide supplemental site-specific guidance.

### **Airtanker Base Personnel**

The *IATBOG* identifies a generic table of organization and recommended staffing for airtanker bases. The guide describes the duties of various positions at airtanker bases. Currently, there is no identified training for the positions at airtanker bases; *IATBOG* contains a chart of recommended training for each position. It is critical that reload bases staff up commensurate with the need during periods of moderate or high fire activity at the base. All personnel conducting airtanker base operations should review the *IATBOG* and have it available.

### **Startup/Cutoff Time for Airtankers**

These limitations apply to the time the aircraft arrives over the fire.

Airtankers shall be dispatched to arrive over the fire not earlier than 30 minutes after official sunrise and not later than 30 minutes before official sunset.

Airtankers may be dispatched to arrive over a fire as early as 30 minutes prior to official sunrise, or 30 minutes after official sunset, provided:

- A qualified ATGS, ASM1, or ATCO is on the scene; and
- Has determined visibility and other safety factors are suitable for dropping retardant; and
- Notifies the appropriate dispatcher of this determination.

An airtanker, crewed by an initial attack-rated captain, may be dispatched to arrive over a fire without aerial supervision by an ATGS, ASM1, or ATCO provided the airtanker's arrival and drop activities are conducted between 30 minutes after official sunrise and 30 minutes before official sunset in the lower 48 states. In Alaska, an airtanker pilot will not drop retardant during periods outside civil twilight.

## **Single Engine Airtankers**

### **Single Engine Airtanker (SEAT) Operations**

The *Interagency SEAT Operating Guide (ISOG) (NFES #1844)* defines operating standards and is policy for both the DOI and USFS. A SEAT manager (SEMG) must be assigned to each SEAT operation.

### **SEAT Policy and Standards**

Units using SEATs will ensure the aircraft complies with appropriate OAS or USFS contract standards prior to use. For interagency SEAT standards, refer to OAS exclusive use and CWN contract provisions and the *ISOG*.

### **SEAT Organization/ Training and Qualifications**

The SEAT Manager position has been adopted by NWCG (2002). (refer to the ISOG)

### **Safety**

All SEAT operators and users will adhere to OAS/Forest Service safety standards. Flight operations, pilot requirements, flight crew duty and flight limitations, and the use of PPE are addressed in the above referenced standards.

### **Pilot Training**

All SEAT pilots will meet the minimum fire training standards as described in their contract. The following outline has been approved and includes the following fire topics as a minimum.

- Fire behavior
- Air/ground tactical operations
- Incident organizational structure and terminology
- Fire perimeter designation
- Radio communications and procedures
- Use of retardants and suppressants
- Mountain flying techniques
- Unit-specific operational guidelines as appropriate

### **Operational Procedures**

Using SEATs in conjunction with other aircraft over an incident is standard practice. Agency or geographical area mobilization guides may specify different procedures and limitations.

Depending on location, operator, and availability, SEATs are capable of dropping suppressants, water, or other approved retardants. The fixed tanks are fiberglass.

Because of the load capacities of the SEATs (400 to 800 gallons), quick turn-around times should be a prime consideration. SEATs are capable of taking off and landing on dirt, gravel, or grass strips (pilot must be involved in selection of the site); a support vehicle reduces turn-around times.

Reloading at established airtanker bases or reload bases is authorized. (SEAT operators carry the required couplings.) All base operating plans must include SEAT loading criteria.

### **Communication**

All SEATs must have one VHF-AM and one VHF-FM (programmable) multi-channel radio. (See contract specifications.)

## Aerial Supervision

Aerial supervision resources will be dispatched, when available, for initial and extended attack to enhance efficiency and safety.

During initial response operations the recommended aerial supervision in priority order with regard to safety and efficiency is as follows:

- 1) ASM1
- 2) ATGS
- 3) ATCO (Leadplane)
- 4) Smokejumper Spotter
- 5) Helicopter Manager

If aerial operations continue beyond initial response, an ASM1, ATGS or ATCO will be ordered. Aerial supervision response will be commensurate with expected complexity.

### Low-level Flight Operations

The only fixed-wing aircraft missions authorized for low-level fire operations are:

- Para-cargo
- Aerial Supervision Module-1 (ASM1) and leadplane operations
- Retardant, water and foam application

Operational Procedures:

- A high-level recon will be made prior to low-level flight operations.
- All flights below 500 feet will be contained to the area of operation.
- All resource flights below 500 feet must have an approved plan.

### Congested Area Flight Operations

Airtankers can drop retardant in congested areas under DOI authority given in *FAR Part 137*. USFS authority is granted under exemption 392, from *FAR 91.119 as* referenced in *FSM 5714*. When such operations are necessary, they may be authorized subject to these limitations:

- Airtanker operations in congested areas may be conducted at the request of the city, rural fire department, county, state, or federal fire suppression agency.
- An ASM1/leadplane is ordered to coordinate aerial operations.
- The air traffic control facility responsible for the airspace is notified prior to or as soon as possible after the beginning of the operation.
- A positive communication link must be established between the airtanker coordinator or aerial supervision module (ASM1), airtanker pilot(s), and the responsible fire suppression agency official.
- The incident commander (IC) for the responsible fire agency or designee will advise the ASM1/leadplane/airtanker that all non-essential people and movable property have been cleared prior to commencing retardant drops.
- PPE is required for all fixed-wing, low-level flights. Helmets are not required for smokejumper pilots and ASM flight/aircrew members.

### Aerial Supervision Module 1 (ASM1)

The ASM1 is a fixed-wing platform that utilizes a crew of two trained as a team, to function as the ATGS and/or leadplane. The ASM1 provides aerial supervision and leadership in support of incident objectives.

The Air Tactical Pilot is primarily responsible for aircraft coordination over the incident. The Air Tactical Supervisor develops strategy in conjunction with the IC, and when no IC is present, assumes those responsibilities until ground personnel arrive.

**BLM** – The *Aerial Supervision Module Operations Guide (ASMOG)* and *Interagency Leadplane Operations Guide (ILOG)* are policy for BLM.

**USFS** – The use of the *Aerial Supervision Module Operations Guide (ASMOG)* is not identified in *FSM 5706* and is not officially FS policy.

### Operational Considerations

The ASM1 is a shared national resource. Any operation that limits the national resource status must be approved by the geographic area fire operations group, in concurrence with the agency program manager.

The crew has the responsibility to determine when the complexity level of the incident exceeds the capability to perform both ATGS and leadplane functions from one aircraft. It will request additional supervision resources to maintain operational safety.

### Policy

Other ATGS personnel are not authorized to be part of this module. Authorization for other agency personnel to operate in this module must be initiated by the requesting agency and approved by the BLM Aviation Program Manager. Aerial or incident complexity and environmental considerations will dictate when the ASM1 ceases low-level operations.

### Air Tactical Group Supervisor (ATGS)

The ATGS is primarily responsible for coordination of aircraft operations and firefighter safety on an incident. Specific duties and responsibilities are outlined in the *Fireline Handbook (PMS 410-1)*. The ATGS reports to the Air Operations Branch Director (AOBD), or in the absence of the AOBD, to the Operations Section Chief (OSC), or in the absence of the OSC, to the IC. When airborne, the ATGS works for the IC or OSC, depending on the size of the incident. When the positions are in use on an incident, the Airtanker Coordinator (ATCO) and Helicopter Coordinator (HLCO) will be supervised by the ATGS. The ATCO, commonly called a leadplane pilot, provides direct supervision to fixed-wing retardant aircraft, while the HLCO deals with tactical coordination and airspace management for rotary-wing aircraft.

PPE (flight suit or fire shirt and pants, gloves, and boots) is recommended for fixed-wing fire reconnaissance and ATGS.

Currently there are three operational modes for ATGS operations:

- 1) The ATGS is in a contracted or ARA (rental) fixed-wing aircraft in orbit over the incident. It will always occur above 500 AGL. Pilot/aircraft carding requirements must be met, and PPE is recommended.
- 2) The ATGS is in a contracted, CWN, or ARA (rental) rotary-wing aircraft. PPE is required.
- 3) The ATGS is on the ground with a vantage point of the entire incident. Generally only used due to an aircraft shortage, it is effective when the entire area can be

viewed from the ground and the ATGS has VHF-AM and VHF-FM radio communication capability.

*USFS* – PPE is required for FS ATGS operations as per agency standard *FSM 5700*.

An aircraft will have as a minimum two 720-channel VHF-AM radios and one programmable VHF-FM with a stand-alone guard channel; the pilot is carded to perform the air tactical mission. Handheld VHF-FM radios are not acceptable as the only VHF-FM.

### Operational Considerations

- A relief ATGS and aircraft or ASM1 should be ordered for sustained operations to ensure continuous coverage over an incident.
- Personnel who are performing aerial reconnaissance and detection will not perform air tactical duties unless they are fully qualified as an ATGS.

### Leadplane

A leadplane is a national resource. The *Interagency Leadplane Operations Guide (ILOG)* is agency policy.

ASM1 or leadplane is required when:

- The airtanker pilot is not initial attack rated.
- Air operations are over a congested area.
- MAFFS airtankers are assigned to the incident.
- When foreign government airtankers are being used.
- When two or more airtankers are over the incident.
- When the airtanker flight crew request a leadplane.

Agency policy requires an ASM1/leadplane to be on order prior to retardant drops over a congested area. Operations may proceed before the ASM1/leadplane arrives, if communications are established, authorization is granted from the IC, and the line is cleared prior to commencing retardant operations.

Aerial supervision over an incident is recommended when there are more than two aircraft or a mix of aircraft over the incident at the same time.

Fire aircraft with a transponder will use a setting of 1255 when over the incident and not in a controlled airspace.

*BLM* – For BLM purposes, two airtankers could be assigned to the same incident, but if they are not in a pattern over the fire together, they are not considered “over the fire.”

**Note:** “Assigned to the incident” is not the same as “over the incident.”

ASM1/leadplane are not required for SEAT operations.



## Airspace Coordination

The Interagency Airspace Program is an aviation safety program designed to enhance aviation safety and reduce the risk of a mid-air collision. Guidance for this program is found in the *Interagency Airspace Coordination Guide (IACG), 1991*, which has been adopted as policy by the OAS and USDA Forest Service. Additional guidance may be found in the *National Interagency Mobilization Guide* and supplemented by local Mobilization Guides.

The *IACG* is the primary document to be used by aviation personnel for airspace issues. Additional information is located on several agency airspace websites ([www.fs.fed.us/r6/fire/aviation/airspace](http://www.fs.fed.us/r6/fire/aviation/airspace) and <http://airspace.blm.com>)

Additional references can be found by contacting:

**BLM** – State Aviation Managers, Regional Airspace Coordinator and the BLM National Aviation Office Airspace Coordinator.

Temporary Flight Restriction (TFR) information on World Aeronautical (WAC), Sectional and Global Navigational Charts (GNC) has been made available at the BLM Airspace Information System website. TFRs are updated twice daily, 7 days a week during the fire season, and once daily, 5 days a week during the rest of the year. In addition, a tactical chart with TFR specific information with incident names, frequencies and altitudes are available. These charts are all current versions.

**USFS** – Regional Aviation Safety Officers, Regional Airspace Coordinators and the USFS Airspace Program Manager

**NPS** – Regional Aviation Officers

### Policy

The 9400-1a, "Aircraft Flight Request/Schedule Form," will be used for approval and flight planning. This form will be completed between the aircraft dispatcher and flight manager for missions not requested on a Fire Resource Order. The fixed-wing or helicopter manager will use this form to brief the pilot on the mission.

**NPS** – Reference *RM 60*, Appendix 3&4.

Special use flight plans require approval by the immediate supervisor and final approval by the appropriate line manager.

**NPS** – Approval per unit aviation management plan.

## Types of Flights

There are two types of flights: point-to point and mission flights. Point-to-point flights originate at one developed airport or permanent helibase, with the direct flight to another developed airport or permanent helibase. These flights require approved pilots, aircrew, and aircraft.

A point-to point flight is conducted higher than 500 feet above ground level (AGL).

Mission flights are defined as flights not meeting the definition of point-to-point flight. A mission flight requires work to be performed in the air (retardant or water delivery, fire reconnaissance, smokejumper delivery), or through a combination of ground and aerial work (delivery of personnel and/or cargo from helibases to helispots or unimproved landing sites, rappelling or cargo let-down, horse herding).

*USFS* – Refer to *FSM 5710.5* for administrative use, *FSM 5705* for point-to-point and mission use for types of Forest Service flights.

## Fixed-wing Aircraft

### *Point-to-point Flights*

All agency flights shall be approved using an aircraft request/flight schedule, USDI form 9400-1a. This form is used to plan, brief the pilot, and track point-to-point flights.

Agency policy requires designating a fixed-wing manager for point-to-point flights transporting personnel. The duties and responsibilities of the flight manager are:

- Check pilot card to ensure qualifications are current for aircraft type.
- Check aircraft card to ensure that aircraft is current and approved for the mission.
- Flight plan/flight following: filed with FAA or agency, facilitate as needed. (Filing, opening, and closing the FAA flight plan is the responsibility of the pilot.)
- Brief pilot on flight route/mission objective.
- Pilot briefing to passengers.
- Ensure passengers have received and understand briefing; all personnel on board are either air crew members, or authorized or official passengers.
- Check fiscal documents; ensure flight payment paperwork is accurate, as outlined on the 9400-1a form for the flight, that procurement document and all signatures are secured.

*NPS* – Reference *RM-60*, Appendix 3 for agency specific policy.

### *Mission Flights*

Mission flights are aircraft operations associated with initial attack of wildfires, large fire support and resource management.

- PPE is required for a mission flight conducted within 500 feet AGL.
- All personnel will meet training and qualification standards required for the mission.

Mission flights for fixed-wing aircraft include but are not limited to the following:

- Water or retardant application.
- Parachute delivery of personnel or cargo.
- ATGS operations. (PPE recommended not required.)
- Airtanker coordinator operations.
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions.
- Fire reconnaissance (PPE recommended not required.)
- Precision reconnaissance

*BLM* – The flight request form, 9400-1a, is used when requesting fixed-wing or helicopters for non-fire missions. Non-fire mission flights require an

approved project aviation safety plan. A one-time flight may use the reverse side of USDI Form 9400-1a for this purpose.

*NPS* – Refer to RM-60, Appendix 3 and 4.

## Helicopters

### *Mission Flights*

Mission helicopter flights include but are not limited to the following:

- Flights conducted within 500 feet AGL
- Water or retardant application
- Helicopter coordinator and ATGS operations
- Aerial ignition activities
- External load operations
- Night vision goggle operations
- Hoversite/autosurvey
- Rappelling
- Aerial capture, eradication, and tagging of animals
- Offshore vessel or platform landings
- Toe-in, single-skid and step-out landings (prior authorization or exemption is required)
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions
- Free-fall cargo
- Fire reconnaissance
- Precision reconnaissance

The use of PPE is required for both helicopter flight missions and ground operations. The specific items to be worn are dependent on the type of flight, the function an individual is performing, or the ground operation being conducted. Refer to the tables in Chapter 9 of the *IHOG* for specific requirements.

*BLM* – The flight request form, 9400-1a, is used when requesting fixed-wing or helicopters for non-fire missions. Non-fire mission flights require an approved project aviation safety plan. A one-time flight may use the reverse side of BLM Form 9400-1a for this purpose.

*NPS* – a Refer to *RM60* Appendix 3, planning guide, flight request form, 9400-1a.

## Flight-Following All Aircraft

Flight-following is the responsibility of the scheduling office and will remain so until transferred through a documented, positive hand-off. Flight-following reports from the aircraft are the responsibility of the pilot-in-command (PIC) in accordance with *14 CFR*. Violation of flight-following standards requires submission of a SAFECOM.

For tactical aircraft that cross dispatch area geographic boundaries, the receiving unit is responsible to confirm arrival of the aircraft via landline to the sending Geographic Area Coordination Center.

*BLM/FWS/NPS* – Refer to *351 Departmental Manual – Flight Operations Standards and Procedures* and *IHOG* Chapter 4.

*USFS* – Refer to *FSM 5700* and *IHOG* Chapter 4 for agency specific direction.