



## 13 - Aviation Operations

### Introduction

#### Purpose and Scope

Aviation managers are responsible for aircraft missions that support BLM programs. Policy and standards ensure that aviation services are safe, cost effective, low risk, and benefit the Bureau and the public.

Each level of 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, planning, supervision and evaluation.

#### Roles and Responsibilities

*Office of Aircraft Services* The Office of Aircraft Services (OAS) is responsible for aviation policy, aircraft acquisition, and maintenance management within the bureaus of the Department of the Interior (DOI); however, OAS has no operational responsibility. OAS provides aviation safety program oversight and accident investigation, aircraft and pilot inspection, and policy development. Refer to 112 DM 12 for a list of responsibilities.

*National Aviation Office* (NAO) develops bureau policy, procedures, and standards, and maintains functional oversight and interagency coordination for all aviation activities. The primary goals are safety and cost-effectiveness. The national office promotes risk management and supports Bureau functions and missions, including fire suppression. Refer to *BLM Manual 9400* for aviation policy procedures and a list of Guides.

*State Office* State Aviation Managers (SAMs) are located in all BLM state offices. SAMs implement aviation program objectives and directives to support the BLM mission and each state's goals. Several states have additional support staff, aircraft dispatchers, and/or pilots assigned to support aircraft operations and to provide technical expertise. A state aviation operations and management plan is required to outline goals of the state's aviation program and to identify state-specific policy and procedures.

*Local Level* Unit Aviation Managers (UAM) have the responsibility for aviation activities at the local level, including aviation mission planning, safety measures, supervision, and evaluation. Unit Aviation Managers are to assist Field Office Managers with risk management assessments and cost analysis.

### Aviation Information Resources

Aviation reference guides and aids for BLM aviation management are listed in Appendix 1 of the 9400 manual. Guides provide policy, guidance, and specific procedural requirements. **Note: In all cases DOI policy (DMs, OPMs, and Bureau policy) will take precedence.**

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

Aviation managers must maintain an up-to-date library with aviation policy and procedural references, and this includes tactical aviation bases.

## Aviation Safety

### Risk Assessment and Risk Management

Risk assessment is part of the risk management process, and can range from the simple to the complex. Assessing risk allows for hazard identification, the degree of risk associated with each, and place hazards in relationship to the mission. A decision to conduct a mission requires implementing controls to ensure a safe and successful operation. For a detail to the risk management process, refer to Chapter 3 of the *Interagency Helicopter Operations Guide (IHOG)*.

Aviation missions have some inherent risk. Managing risk is a 5-step process:

- 1) Identify hazards.
- 2) Analyze hazards to determine (1) the effect on personnel and equipment should the hazard be encountered, and (2) the probability that the hazard will be encountered.
- 3) Weigh the risk against the benefit of performing the mission.
- 4) Mitigate risk by establishing and implementing controls. Control may be as substantial as writing a special-use plan or as simple as conducting a safety briefing.
- 5) Supervision by qualified personnel is critical to successful risk management.

## Aviation Watch Out Situations

As part of risk management, each aviation manager and employee should ask the following questions:

- Is the flight necessary?
- Who is in charge?
- Are all hazards identified and are they known?
- Should the mission be stopped due to changing conditions?
  - Communication?
  - Confusion?
  - Personnel?
  - Weather?
  - Turbulence?
  - Conflicting priorities?
- Is there a better way to do it?
- Are you driven by the task and a sense of urgency?
- Can you justify your actions?
- Are other aircraft in the area?
- Does the pilot accept the mission?
- Are any guidelines being ignored or policies being broken?
- Communication overload?
- Deviation from the assigned operation or flight plan?

## Mission Planning/Hazard Mitigation

Pre-flight planning will reduce risks on any mission. During flight planning and scheduling, the following points must be addressed:

- Completion and submission of the aircraft flight request/schedule (9400-1a) or a Fire Resource Order
- Cost analysis
- Assessment and mitigation of hazards
- Selection of aircraft

- Scheduling of pilots and aircraft
- Pre-flight briefings

### Aviation Safety Assistance

During high levels of aviation activity it is advisable to request an Aviation Safety Assistance Team (ASAT). A team is made up 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 inspection and carding all aircraft and pilots utilized by BLM. With the exception of a life-threatening situation, no employee will fly with pilots or in aircraft that have not been approved. State agency aircraft and pilots are approved by either the OAS or the USFS. These pilots may or may not carry a card; but, they must have an approval letter.

The unit dispatcher or aviation manager is responsible for checking and verifying pilot and aircraft cards for mission planning and procurement. Prior to any flight, it is the responsibility of the employee to check for pilot and aircraft cards or letters of approval.

Field personnel cannot suspend or revoke a pilot's card. Only the agency issuing authority can suspend or revoke a card. However, any employee can suspend operations that are considered unsafe.

*Military or National Guard aircraft and pilots: The Military Use Handbook (NFES 2175) should be used when planning or conducting aviation operations involving military aircraft. Ordering military assets is done through the NICC; National Guard assets are utilized through local or state MOUs.*

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### Aviation Safety Briefing

Every passenger must receive a briefing prior to each flight. The briefing 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. The briefing will be specific to the mission to include; but, is not limited to the following:

- Pilot/Aircraft Data Card Approved and Current
- Flight Plan and Flight Following Initiated
- Personal Protective Equipment (PPE) Requirements
- Crew and Passenger Briefing: Seat belts & harness, location of emergency equipment, fire extinguishers, an emergency locator transmitter (ELT), fuel/battery cut off switch, survival equipment
- Emergency Exits location and operation.
- NO SMOKING in or around aircraft or fuel sources.

### Aviation Hazard

An aviation hazard is any condition, act, or circumstance that compromises the safety of personnel engaged in aviation operation. 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.
- Hazardous materials handling and/or transport.
- Airspace/flight following.
- Deviation from planned operations.
- Failure to utilize Personnel Protective Equipment (PPE) or follow the Aviation Life Support Equipment (ALSE).
- Failure to meet qualification standards or training requirements.
- Weather conditions.
- Ground operations.
- 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 operations where aircraft are operated, regardless of agency jurisdiction. It will be posted for and communicated to the flight crews.

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

The Department of the Interior and USDA Forest Service have adopted a common incident/hazard reporting form called the SAFECOM (Safety Communiqué).

The local aviation management staff is responsible for completion and transmittal of the form. Any individual (including contractors) with knowledge of an incident/hazard can and should complete a report. The form is routed to OAS, National Aviation Safety Manager, and State Aviation Manager.

Notify OAS and BLM 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). A report will be forwarded by electronic mail or telefax to the State 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.

#### 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).

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*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.

## Helitack

Helitack crews perform suppression and support operations on initial attack, extended attack, and large fires; and also manage helicopter operations in order to accomplish resource management objectives.

### Policy

The Interagency *Helicopter Operations Guide (IHOG)* is policy. The *Departmental Manual 350-354 DM* and *Manual 9400 Aviation Management* are the umbrella documents for aviation policy and operations in the bureau.

### Organization

The BLM exclusive-use helitack crew standard will have a minimum of nine personnel (PFT manager, long-term assistant, long-term lead and six temporaries). Each crew must be able to support and manage a CWN helicopter as the need arises, from the exclusive-use crew.

Helicopter Manager (HEMG)	1 season as an assistant HEMG or 2 seasons as a lead HECM
Assistant Helicopter Manager	2 seasons as a HECM or Lead HECM
Lead Helicopter Crew Member	1 season as a HECM
Helicopter Crew Member (HECM)	should have at least 1 season of firefighting experience (FFT2)

The HEMG and Assistant HEMG must also be qualified as ICT4. Crew members must be at least FFT2 qualified.

### 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 Bureau helitack and helicopter operations. The *IHOG* serves as the interagency standard for operations, and has been adopted/implemented by the NPS, BIA, BLM, and Forest Service. The FWS has implemented it on the basis of regional need and some state agencies use the *IHOG*.

Exclusive-use Type 3 helicopters and helitack crews are controlled and dispatched locally by the administrative unit. Type 2 helicopters and helitack crews are a national resource, and available for fire assignment when ordered by NICC, unless otherwise already committed.

Required and recommended equipment for helitack crews and helicopters changes frequently. Consult the *IHOG* (Chapter 9) and the contract for requirements.

### Communication

BLM helitack crew standard is four programmable multi-channel FM radios per crew, and one multi-channel VHF-AM programmable radio in the primary helitack crew (chase) truck.

### Transportation

Due to the cost and amount of the specialized equipment required for a helitack operation, a dedicated vehicle(s) with adequate storage and security will be provided for helitack crews. The required GVW of the vehicle(s) will be dependent upon the size class of the helicopter and the number of helitack crew members. A standard BLM Helitack Support Vehicle may be ordered through the Equipment Development Unit at NIFC.

### Safety

Helitack crews provide safe and efficient aviation service in support of bureau and interagency goals and objectives. All helitack crews will consider risks and take appropriate action in order to fight fire safely. Tactical decisions will be made in accordance with the **10 Standard Fire Orders, 18 Watch Out Situations, and principles of LCES**. Helicopter operations must follow the FAA, DOI, BLM, the helicopter contract and the *IHOG*.

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

### Training

The primary mission of helitack crews is to fight fire; therefore, all members will meet **minimum** fire qualifications as prescribed by the NWCG 310-1 and BLM Manual 9215. In addition, personnel will meet the *IHOG* training and experience requirements for each position. The following chart combines the 310-1 and *IHOG* training requirements:

Helicopter Crew Member	S-130, S-190, S-217
Lead Helicopter Crew Member*	S-201, S-211, S-212
Assistant Helicopter Manager	S-200, S-215, S-230, S-260, S-271, S-290, and Contracting Officer's Authorized Representative/ Project Inspector Training
Helicopter Manager	Biennial attendance at a Helicopter



### Manager workshop

- \* The lead helicopter crew member should attend as many of the courses required for assistant manager as possible, to lessen the training impact when the individual becomes an assistant manager or manager.

### Physical Fitness Standards

Helitack personnel must meet the arduous physical fitness requirement

### Helicopter Operations

*PPE Requirements* As stated in the *Interagency Helicopter Operations Guide (IHOG)*, for firefighters, “the only acceptable situation where a hard hat may be substituted for a flight helmet is for passenger transportation to and from a managed helispot/helibase.” Firefighters are defined as hand crews being shuttled to and from camp, primarily on extended attack fires. All initial attack helitack crews and miscellaneous fire overhead flying for recon and scouting will be required to wear full PPE, including a flight helmet.

## Helicopter Rappel & Cargo Let-Down

Rappel operations provide for safe, efficient initial attack, and helispot construction.

### Policy

All fire rappel and cargo let-down operations must follow the *Interagency Helicopter Rappel Guide (IHRG)*. Any fire rappel and cargo let-down programs must be approved by the Director, Fire & Aviation Management Policy.

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 Rappel is certified by an approved Rappel Check Spotter. BLM Check Spotters are approved annually by the State Aviation Manager (SAM), OAS Training Specialist or Helicopter Operations Specialist. For more information on Rappel initial training and certification, refer to the *IHRG*.

### Rappel Check Spotter Minimum Requirements:

- Must have been a qualified Spotter for two seasons.

- Must have assisted in training at least two Spotters.
- Must be recommended by an agency Helicopter Operations Specialist and have demonstrated ability as an instructor.

**Rappel Spotter Training and Certification Prerequisites:**

- Meet the training, experience, and certification requirements for a Helicopter Manager as stated in the *IHOG* and have one season of rappel experience, or two seasons of rappel experience.
- For a new program within a bureau or agency, it will be the responsibility of the certifying officials and local managers to designate initial Spotter Trainees.
- Fire program Spotter candidates must have a minimum of three seasons fire experience.

**Initial Spotter Training:**

- Successfully complete the *IHRG* Rappel Spotter Training Course.
- Spotters are certified to spot from specific models of helicopters (each helicopter has unique rigging and exit procedures).
- All training will be supervised by a certified Check Spotter.

*Model-Specific Training* Spotter certification for different helicopter models, must be trained by a Spotter current in that model. Spotters then must be approved by a certified Check Spotter prior to performing operational spots in any mode not certified to spot from. If an individual cannot meet the minimum requirements, the Check Spotter will disqualify the trainee as a Spotter.

### Operational Procedures

*Rappel Proficiency* Each Rappeller must make one error-free helicopter or simulator rappel in any 14 consecutive days, to maintain proficiency. If proficiency is lost an error-free simulator or mockup and helicopter proficiency rappel must be completed prior to any operational rappel.

*Spotter Proficiency* Each Spotter must make one error-free helicopter or simulator spot in any 14 consecutive days to maintain proficiency. This mission must include a full load of Rappellers and cargo deployment. If proficiency is lost an error-free simulator or mockup, then a helicopter proficiency spot must be completed prior to any operational spots.

*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 IHOPS Helirappel Working Group. It will be evaluated based on the objectives and the following criteria: critical safety, national focus, and priority.

All equipment must be approved by an aerial attack systems specialist for the USFS and the BLM National Helicopter Specialist.

*Helicopter Cargo Let-Down Procedures* Cargo let-down augments helicopter capabilities, but does not replace long-line operations. Exposure and risk assessment must be addressed when deciding which type of helicopter cargo delivery system to use.

Helicopter cargo let-down is defined as *the deployment of cargo from a hovering helicopter with an approved webbing/rope, descent device, and auxiliary equipment*. Only personnel trained and qualified will use this procedure. Refer to the *IHRG*.

*Aerial Ignition* The *Interagency Aerial Ignition Guide* (IAIG) is policy for all aerial ignition activities.

These guides (IHOG, IHRG, and IAIG) define and standardize national interagency operating procedures for all helicopter operations, both fire and non-fire. They facilitate interagency exchange of personnel during through standardization and provide a standardized approach for contractors.

## 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 C-130 MAFFS, which are Air National Guard resources and primarily used to supplement the contract fleet when needed).

Large airtankers are procured under a national interagency contract. The management of these resources is governed by the requirements of the Departmental Manual, *BLM Manual 9400*, and the *Interagency Airtanker Base Operations Guide (IATBOG)*. Airtankers are operated by commercial vendors in accordance with FAR Part 137.

The Interagency Airtanker Board ( IATB), consisting of Forest Service, DOI, and state forestry agencies, is responsible for approving the contract airtanker fleet.

#### *Operational Principles*

- Use retardant drops before an immediate need is recognized; pretreat according to expected fire behavior.
- Retardant dropped in the morning will 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.

#### Categories

Airtankers types are distinguished by their retardant load:

**Type 1** – over 3000 gallons

**Type 2** – 1800 to 3000 gallons

**Type 3** – 800 to 1800 gallons

**Type 4** – > 800 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. (The requirements for Level 1 and Level 2 are based on the number of aircraft operating concurrently within the airspace.)

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*Initial Attack Qualified* A crew may drop retardant on 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's acquiring the experience, training, and prerequisite drops—but in the interim requires aerial supervision.

### Tanker Bases & Reload Facilities

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

#### *Airtanker Base Locations:*

<b>Alaska</b>	<b>Eastern</b>	<b>Rocky Mountain</b>
Delta Junction	Bemidji, MN	Broomfield(Jeffco), CO
Fairbanks	Brainard, MN	Durango, CO
Galena	Ely, MN	Grand Junction, CO
McGrath	Hibbing, MN	Greybull, WY
Palmer		Rapid City, SD
Tanacross		
<b>California</b>	<b>Great Basin</b>	<b>Southern</b>
Bishop	Battle Mountain, NV	Asheville, NC
Chester	Minden, NV	Ft. Smith, AR
Chico	Stead, NV	Knoxville, TN
Columbia	Boise, ID	Lake City, FL
Fresno	McCall, ID	London, KY
Goleta	Pocatello, ID	Tallahassee, FL
Grass Valley	Cedar City, UT	Weyers Cave, WV
Hemet	Hill/Ogden, UT	
Hollister	<b>Northern</b>	<b>Southwestern</b>
Lancaster	Coeur d'Alene, ID	Alamogordo, NM
Montague	Grangeville, ID	Albuquerque, NM
Paso Robles	Billings, MT	Roswell, NM
Porterville	Helena, MT	Silver City, NM
Pt. Mugu	Kalispell, MT	Ft. Huachuca, AZ
Ramona	W. Yellowstone, MT	Prescott, AZ
Redding	<b>Northwest</b>	Winslow, AZ
Rohnerville	Klamath Falls, OR	
San Bernardino	LaGrande, OR	
Sonoma	Moses Lake, WA	
Stockton	Redmond, OR	
Ukiah	Troutdale, OR	

Certain parameters for the operation of airtankers are agency-specific. For dispatch procedures and limitations, startup/cutoff times, specific requirements for 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 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 Air Tankers

These limitations apply to the time the aircraft arrives over the fire, not to the time the aircraft conducts retardant drops.

Normally, 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 Air Tactical Group Supervisor or ASM1/Airtanker Coordinator 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 or ASM1/leadplane providing 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

An *Interagency SEAT Operating Guide (ISOG)* has been approved as policy by both the BLM and USFS. A SEAT manager must be assigned to each SEAT operation.

The SEATs is a cost effective fire suppression tool, even though they have been used effectively on extended attack fires, they are best as an integral part of the initial-attack strategy.

### SEAT Policy and Standards

Field offices or sponsoring units using SEATs will ensure the aircraft complies with OAS and bureau standards prior to use. For interagency SEAT standards refer to OAS exclusive use and CWN contract provisions, and the *ISOG* (NFES # 1844).

### Location

SEATs are normally acquired through the CWN or exclusive contract process. In addition to the SEATs listed below, approximately 20 CWN SEATs are available. Location of Exclusive Use SEATs:

Contract	State	Location
BLM	Arizona	Kingman
BLM		St. George
BLM		St. George
BLM		Safford
BLM		Safford
BIA		Whiteriver
BIA		Window Rock
BLM	Idaho	Shoshone
BLM		Twin Falls
BLM	Montana	Lewistown
BLM		Miles City
BLM		Miles City
DNR	Minnesota	Bemidji
DNR		Dulce
BLM	Nevada	Elko
BLM		Panaca
BLM		Winnemucca
BIA	New Mexico	Albuquerque



Contract	State	Location
BLM	Oregon	Burns
USFS		John Day
BLM		Lakeview
BLM		Ontario
BLM		Prineville
BLM		Vale
BLM	Utah	SLC District
BLM		Tooele
BIA	Washington	Omak

### SEAT Organization

SEATs give fire managers a tool that is local in nature and “self- contained.” Self-contained means only that the operator is required to fuel, reload, and support the aircraft in accordance with BLM and OAS standards. The *ISOG* defines operating standards and is policy.

The BLM developed a SEAT Manager (SEMG) position with accompanying curricula, including a training course, position task book, and experience requirements (refer to the *ISOG*). With the increased use of SEATs nationwide, the demand for this position has increased accordingly. The roles and responsibilities of the SEMG parallel that of the helicopter manager. **The assignment of an SEMG is required for all SEAT assignments.**

### Safety

All SEAT operators and users will adhere to DOI/BLM/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.

### 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.
- Bureau specific operational guidelines as appropriate.

### Operational Procedures

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

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

Because of the load capacities of the SEATs (300 to 800 gallons), quick turn-around times should be a prime consideration of the user. 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. Volunteer fire departments have helped in many rural areas to sustain the operation's water needs.

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.

Pre-positioning SEATs is recommended during forecasted periods of high fire danger.

### Communication

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

## Aerial Supervision

Aviation operations on incidents are often conducted under extremely adverse flight conditions. Congested airspace, reduced visibility, adverse weather condition and mountainous terrain all add to the complexity of aircraft operations over an incident. Situations and complexities dictate the level of supervision required to safely and effectively conduct aerial operations. 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 will continue beyond initial response, an ASM1, ATGS or ATCO will be ordered. Aerial supervision response will be commensurate with expected complexity.

### Low-level and Congested Area Flight Operations

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

- para-cargo dropping,
- Aerial Supervision Module-1(ASM-1) and leadplane operations
- airtankers and SEATS.

Operational Procedures:

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

BLM-operated airtankers can drop retardant in congested areas under the authority given in FAR Part 137. When such operations are necessary, they may be authorized subject to these limitations:

- 1) Airtanker operations in congested areas may be conducted at the request of the city, rural fire department, county, state, or federal fire suppression agency.
- 2) An ASM1/leadplane is ordered to coordinate aerial operations.
- 3) The air traffic control facility responsible for the airspace is notified prior to or as soon as possible after the beginning of the operation.
- 4) 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.

- 5) The Incident Commander for the responsible fire agency or designee will advise the ASM1/leadplane that all non-essential people and movable property have been cleared prior to commencing retardant drops.
- 6) 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

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

The ASM1 is a fixed wing platform that utilizes a crew of two, to function as the Air Tactical Group Supervisor or Leadplane, when necessary. The ASM1 requires both crew members to be trained as a team, utilizing Crew Resource Management (CRM) skills and techniques enhancing safety, efficiency and effectiveness. Module operations require a fluid relationship between crew members that incorporates task sharing and coordination. 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 Incident Commander (IC), and when no IC is present assumes those responsibilities until ground personnel arrive.

The six ASM1 modules available for national assignment are located in the following states: Alaska (3), California (1), Utah/Idaho (1), and Nevada (1).

### 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 Air Tactical Group Supervisor (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 Incident Commander. **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; these missions are not low level.

Currently there are three operational modes for ATGS operations.

- 1) The ATGS is in a contracted, CWN, or ARA (rental) fixed-wing aircraft in orbit over the incident. **This is not a low-level flight scenario; 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. This mode of operation occurs most often on Type 1 or Type 2 incidents.
- 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. Helicopter coordination has been used extensively in this manner.

**Any aircraft selected should have as a minimum of two 720 channel VHF-AM radios and one programable VHF-FM with a stand alone guard channel; the pilot will be carded to perform the air tactical mission. Handheld VHF-FM radios are not acceptable as the only VHF-FM.**

### Operational Considerations

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- 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 should not perform air tactical duties unless they are fully qualified as an ATGS.

## Leadplane

The Interagency Leadplane Operations Guide (ILOG) is policy. A Leadplane is a National Resource. Pilots evaluate flight hazards, visibility, wind, storm activity, turbulence, terrain, and other factors to ensure aerial suppression operations are conducted safely and efficiently. Congested airspace, populated areas, and the limited maneuverability of large airtankers all contribute to the need for leadplane.

### ASM1 or leadplane is required when:

- The airtanker pilot is not initial attack rated.
- Air operations are over a congested area. Forest Service policy requires an ASM1/leadplane to supervise airtankers prior to retardant drops over a congested area. BLM policy requires a leadplane **be on order** prior to this drop, but operations may proceed before the ASM1/leadplane arrives, if fire condition warrants.
- MAFFS C-130 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.

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.

Aerial supervision is required over an incident when operations are conducted over congested areas. An ATGS, Aerial Supervision Module (ASM 1), or airtanker coordinator (ATCO) is required for aerial supervision or smokejumper spotter (during smokejumper operation).

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

### Operational Considerations

- BLM and the Forest Service requires a ASM1/leadplane to be ordered when two or more airtankers are over the incident.
- **Note:** "Assigned to the incident" is not the same as "over the incident." 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."
- The BLM does not require ASM1/leadplane to operate with SEATs.

- For operations over congested areas, Forest Service policy is that air operations be conducted under an FAA Grant of Exemption No.392, from FAR 91.119. The BLM does not operate under this exemption, opting instead to operate under the parameters of FAR Part 137.

### Other Guides

There are various guides used to standardize field operations e.g. *Interagency Smokejumper Pilot Operations Guide (ISMOG)*. These guides are in different stages of development. As they are completed, they will be added to the *Standards for Fire and Aviation Operations*.

### Airspace Coordination

The *Interagency Airspace Coordination Guide (IACG)* is policy and operating procedure for BLM airspace coordination. Unless for reasons of safety, any deviation from the policies or procedures contained in the *IACG* must be approved in writing by the Director, Fire and Aviation Management Policy.

The *IACG* is the primary document to be used by BLM personnel (dispatchers, aviation managers, pilots, and ASMs) when dealing with airspace issues. This *IACG*, adopted as policy by the Director of OAS, the Director, Fire and Aviation Management Policy and USDA Forest Service.

State aviation managers (SAMs) are the primary contacts for airspace management issues.

## Flight Management/Flight Following

### Policy

The 9400-1a, aircraft flight request/schedule form, will be used for approval and flight planning. This form will be completed between the chief 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.

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

### Types of Flights

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

Special use flights are defined as all flights not meeting the definition of "point-to-point" flight. As such, special use flight requires work to be performed in

the air (e.g., retardant or water delivery, fire reconnaissance, smokejumper delivery), or through a combination of ground and aerial work (e.g., delivery of personnel and/or cargo from helibases to helispots or unimproved landing sites, rappelling or cargo letdown, horse herding).

Special use flights inherently require greater planning due to the greater number of hazards and consequent higher degree of risk.

A point-to-point flight is conducted 500 feet above ground level (AGL) with no descent below 500 feet AGL. All other flights are special use.

### Fixed-wing Aircraft

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

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

- 1) Check pilot card to ensure qualifications are current for aircraft type.
- 2) Check aircraft card to ensure that aircraft is current and approved for the mission.
- 3) 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.)
- 4) Brief pilot on flight route/mission objective.
- 5) Pilot briefing to passengers.
- 6) Ensure passengers have received and understand briefing; all personnel on board are either air crew members, or authorized or official passengers.
- 7) 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.

*Tactical/Special-Use Flights* Tactical missions are aircraft operations associated with initial attack of wildfires and large fire support. The flight request form, 9400-1a, is used when requesting fixed-wing or helicopters for non-tactical, non-fire missions. Special use flights require an approved special use plan. A one-time flight may use the reverse side of BLM Form 9400-1a for this purpose. The fixed-wing or helicopter manager will brief the pilot, using the BLM Form



9400-1a, and is responsible for the welfare of the bureau employee(s) while on the mission.

PPE is required for a special-use mission.

All personnel will meet training and qualification standards required for the mission.

Special-use flight for fixed-wing aircraft includes the following:

- Flights conducted within 500 feet AGL.
- Water or retardant application.
- Parachute delivery of personnel or cargo.
- ATGS operations.
- Airtanker coordinator operations.
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions.
- Fire reconnaissance (precision recon).

### Helicopters

*Tactical/Special-Use Flights* Dispatching contract or CWN helicopters for initial attack or other tactical missions, requires a resource order.

Special-use helicopter flights include the following:

- Flights conducted within 500 feet AGL.
- Water or retardant application.
- Helicopter coordinator and air tactical group supervisor operations.
- Aerial ignition activities.
- External load operations.
- Night vision goggle operations.
- Hoversite/autosurvey.
- Rappelling.

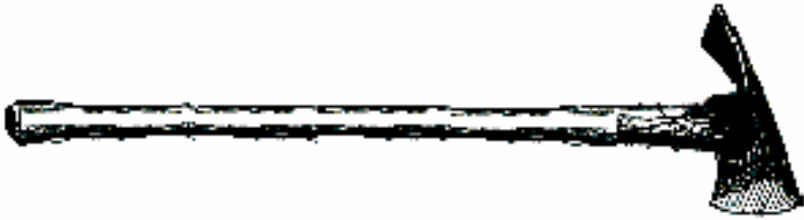
- Aerial capture, eradication, and tagging of animals.
- Offshore vessel or platform landings.
- Toe-in, single-skid and step-out landings (prior authorization or exemption is required).
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions.
- Free-fall cargo.

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.

### Flight Following

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 is the responsibility of the pilot-in-command (PIC) in accordance with 14 CFR. Violation of flight following standards requires submission of a SAFECOM per the Departmental Manual.

For tactical aircraft that cross dispatch area geographic boundaries, the receiving unit is responsible to confirm arrival of the aircraft via land line to the sending GACC.



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