Formatted: Font: 9 pt

Chapter ~~17~~16
Aviation Operations/Resources

Purpose and Scope
Aviation resources are one of a number of tools available to accomplish fire related land management objectives. ~~Their use has value only if that use serves to accomplish the mission.~~

Aviation use must be prioritized based on management objectives and probability of success.

The effect of aviation resources on a fire is directly proportional to the speed at which the resource(s) can initially engage the fire, ~~and~~ the effective capacity of the aircraft~~.~~, and the employment of ground resources.

These factors are magnified by flexibility in prioritization, mobility, positioning, and utilization of the versatility of many types of aircraft.

Risk management is a necessary requirement for the use of any aviation resource. That risk management process must include the risk to ground resources, and the risk of not performing the mission, as well as the risk to the aircrew.

Organizational Responsibilities

National Office

DOI
Aviation Management Directorate (AMD)
The Aviation Management Directorate ~~(AMD)~~, of the National Business Center, is responsible for the coordination of aviation policy development, aircraft acquisition, financial services, and maintenance management within the agencies of the Department of the Interior (DOI). AMD has no operational responsibility. AMD provides aviation safety program oversight, accident investigation, ~~and~~ aircraft ~~and~~, pilot inspection and approval for DOI use.
BLM - National Aviation Office (NAO) - NAO develops BLM policy, procedures, 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 aviation activities and missions, including fire suppression, through strategic program guidance, managing aviation programs of national scope, coordination with AMD, and interagency partners. National Office of Fire and Aviation Management (OF&A) has the responsibility and authority, after consultation with State FMOs, for funding and acquisition of all fire aircraft, prioritizing the allocation of BLM aircraft on a ~~national~~Bureau wide basis, and approving State Office requests to acquire supplemental aircraft resources. Refer to BLM Manual 9400

Formatted: Font: 9 pt

Formatted: Font: Bold

for aviation policy and guides. (Refer to 112 DM 12 for a list of responsibilities.)

~~FS -~~

Forest Service

The US Forest Service has responsibility for all aspects of its aviation program, including aviation policy development, aircraft acquisition, and maintenance management. In addition, the USFS has operational responsibility including development of aviation procedures and standards, as well as functional oversight of aviation assets and facilities, accident investigation, and aircraft and pilot inspection.

~~FS -~~

The National Aviation Officer (NAO) is responsible to the Director of Fire and Aviation Management (Aviation) for the management and supervision of the National Headquarters Office in Washington DC, and the detached Boise Aviation Unit. The NAO provides leadership, support and coordination for national and regional aviation programs and operations. (Refer to FSM 5704.22 for list of responsibilities.) The National Aviation Operations Officer (NAOO) reports to the NAO, and oversees the detached Boise Aviation Unit, and is responsible for all operational aspects of the aviation program.

State/Regional Office

BLM~~/FWS/NPS -~~ - State FMOs are responsible for providing oversight for aircraft hosted in their state. State FMOs have the authority and responsibility to approve, with National Office concurrence, acquisition of supplemental aircraft resources within their state. State FMOs have the authority to prioritize the allocation, pre-positioning and movement of all aircraft assigned to the BLM within their state. State Offices will coordinate with the National Office on movement of their aircraft outside of their State. A State~~/Regional~~ Aviation Manager (S~~/R~~AM) is located in each state~~/regional~~ office. S~~/~~AMs are delegated as the Contracting Officers Representative (COR) for all exclusive use aircraft hosted by their state. SAMs implement aviation program objectives and directives to support the agency mission and state objectives. A state aviation plan is required to outline the state aviation program objectives and to identify state specific policy and procedures.

NPS/FWS - A Regional Aviation Manager (RAM) is located in each regional office. RAMs implement aviation program objectives and directives to support the agency mission and ~~state/~~region objectives. Several ~~states/region's~~ regions have additional support staff, 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.

FS - Regional Aviation Officers (RAOs) are responsible for directing and managing Regional aviation programs in accordance with the National and Regional Aviation Management Plans, and applicable agency policy direction. (Refer to FSM 5720.47c for list of responsibilities.). RAOs report to Director of Fire and Aviation for their specific Region. Regional Aviation Safety Managers

Formatted: Font: 9 pt

(RASMs) are responsible for aviation safety in their respective Regions, and work closely with the RAO to ensure aviation safety is an organizational priority. Most Regions have additional aviation technical experts and pilots who help manage and oversee the Regional aviation programs. Most Regions also have Aviation Maintenance Inspectors, Airtanker Program Managers, Helicopter Program Managers, Helicopter Operations Specialists, Inspector Pilots, etc.

~~BLM - State FMOs are responsible for providing contract oversight Contracting Officers Representative (COR) for aircraft hosted in their state, this duty is delegated to the State Aviation Manager. State FMOs have the authority and responsibility to approve, with National Office concurrence, acquisition of supplemental aircraft resources within their state. State FMOs have the authority to prioritize the allocation, pre-positioning and movement of all aircraft assigned to the BLM within their state. State Offices will coordinate with the National Office on movement of their aircraft outside of their State.~~

Local Office

Some areas have interagency aviation programs that utilize an Aviation Manager for multiple units. Duties are similar as other local level managers.

BLM - Unit Aviation Managers (UAMs) serve as the focal point for the Unit Aviation Program by providing technical expertise and management of aviation resources to support Field Office/District programs. Field/District Offices are responsible for hosting, supporting, providing daily management, and dispatching all aircraft assigned to their unit. Field/District Offices have the authority to request additional resources; ~~and~~ to establish priorities, and make assignments for all aircraft assigned to the BLM within their unit or zone.

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

FS - Unit Aviation Officers (UAOs)/Forest Aviation Officers (FAOs) have the responsibility for aviation activities at the local level, including aviation mission planning, safety measures, supervision, and evaluation. UAOs/FAOs assist Line Officers with risk assessment/management and cost analysis. (Refer to FSH 5709.16_10.42)

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, BLM Fixed Wing Standard Operations Procedures, National Aviation Plan~~.~~, State and Unit Aviation Plans (In all cases DOI policy Department Manuals [DMs], Operational Procedural Memoranda [OPMs], and BLM policy will take precedence.)

FWS - Service Manual 330-339, Aviation Management and IHOG.

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

FS - FSM 5700,ISMOG, FSH 5709.16 and IHOG.

Safety alerts, operational alerts, instruction memoranda, information bulletins, incident reports, and other guidance or information are issued as needed.

Formatted: Font: 9 pt

Formatted: Font: Bold

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

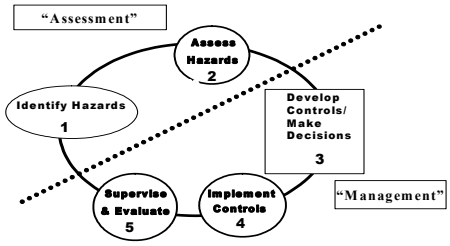
Aviation Safety

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 methods, medium, man, and machine. Managing risk is a 5-step process:
Identify hazards associated with all specified and implied tasks for the mission.
Assess hazards to determine potential of occurrence and severity of consequences.
Develop controls to mitigate or remove risk, and make decisions based on accepting the least risk for the best benefit.
Implement controls - (1) education controls, (2) physical controls, and (3) avoidance controls.
Supervise and ~~evaluate~~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 Safety Support

During high levels of aviation activity it is advisable to request ~~an Aviation~~ a Safety and Technical Assistance Team (~~ASAT). An ASAT's~~STAT). A STAT's purpose is to assist and review helicopter and/or fixed wing operations on ~~ongoing~~ wildland fires. They should be requested through the agency

Formatted: Font: 9 pt

chain of command and operate under a Delegation of Authority from the appropriate State/Regional Aviation Manager(s) or Multi Agency Coordinating Group. Formal written reports will be provided to the appropriate manager(s~~)~~) as outlined at the in-brief. A team should consist of the following:
Aviation Safety Manager
Operations Specialist (helicopter and/or fixed wing)
Pilot Inspector
Maintenance Inspector (optional)
Avionics Inspector (optional)

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 National Interagency Coordination Center (NICC); National Guard resources are utilized through local or state Memorandum of Understanding (MOU).

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) and IHOG Chapter 10.

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~~Pilots, flight crew personnel, aviation managers, incident air operations personnel, and passengers are responsible for hazard identification and mitigation. Aviation hazards may include but are not limited to 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~~.~~

Formatted: Font: 9 pt

Formatted: Font: Bold

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~~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. Unit Aviation Managers are responsible for ensuring the development and updating of Known Aerial; Hazard Maps (IHOG Ch 3.V.J.1.c page 3-20)

SAFECOM

The Department of the Interior (DOI) and the US Forest Service (FS) have an incident/hazard reporting form called The Aviation Safety Communiqué (SAFECOM). The database, available at www.safecom.gov, fulfills the Aviation Mishap Information System (AMIS) requirements for aviation mishap reporting for the DOI agencies and the US Forest Service. Categories of reports include incidents, hazards, maintenance, and airspace. The system uses the SAFECOM Form OAS-34 or FS-5700-14 to report any condition, observation, act, maintenance problem, or circumstance with personnel or aircraft that has the potential to cause an aviation-related mishap. The SAFECOM system is not intended for initiating punitive actions. Submitting a SAFECOM is not a substitute for "on-the-spot" correction(s) to a safety concern. It is a tool used to identify, document, track and correct safety related issues. A SAFECOM does not replace the requirement for initiating an accident or incident report.

Any individual (including cooperators) with knowledge of an incident/hazard should complete a SAFECOM. The SAFECOM form should be entered directly on the internet at www.safecom.gov or can be faxed to the Department of the Interiors Aviation Management Directorate, Aviation Safety (208)433-5069 or to the Forest Service at (208) 387-5735 ATTN: SAFETY. Electronic cc copies are automatically forwarded to the National, Regional, and State and Unit Aviation Managers.

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

Notify FS or AMD and DOI agency Aviation Safety Managers of any aircraft mishap involving damage or injury. Use the hotline (888) 464-7427 or the most expeditious means possible. Initiate the appropriate unit Aviation Mishap Response Plan.

Aviation Assets

Typical agency aviation assets ~~that DOI and USFS utilize~~ are: Helitack and Rappel crews, Smokejumpers, Large Airtankers, Single Engine Air Tankers, Water Scoopers, Helitankers, Air Attack, Aerial Supervision Modules, Lead

Formatted: Font: 9 pt

Planes, Airtanker Bases, SEAT Bases, Helibases, Smokejumper Bases~~, Air Attack Bases~~.

BLM - All BLM acquired aircraft, exclusive use and CWN, are available to move to areas of greatest ~~national~~Bureau need, thereby maximizing efficiency and effectiveness. Specific authorities and responsibilities for Field/State and National Offices are outlined earlier in this chapter. Offices are expected to adhere to procedures established in the National Aviation Plan for both acquisition~~,~~ and use reporting.

Interagency Interim Flight and Duty Limitations
Phase 1 - Standard Flight and Duty Limitations (Abbreviated Summary)
Fourteen (14) hour maximum duty day.
Eight (8) hours maximum daily flight time for mission flights.
Ten (10) hours for point-to-point, with a two (2) pilot crew.
Maximum cumulative flight hours of thirty-six (36) hours, up to forty-two (42) hours in six (6) days.
Minimum of ten (10) hours uninterrupted time off (rest) between duty periods.
This does not diminish the authority or obligation of any individual COR (Contracting Officer Representative) or Aviation Manager to impose shorter duty days or additional days off at any time for any flight crew members for fatigue at their discretion, as is currently provided for in agency direction and contract specifications.

Interim Flight and Duty Limitations Implementation
During extended periods of a high level of flight activity or maximum 14-hour days, fatigue factors must be taken into consideration by Fire and Aviation Managers. Phase 2 and/or Phase 3 Duty Limitations will be implemented for specific Geographic Area's Aviation resources. The minimum scope of operation should be by Geographic Area, i.e., Northwest, Great Basin, etc.

Implementation decisions will be made on a coordinated, interagency basis, involving the GACC, NICC, NMAC and National Aviation Representatives at NIFC.

Official notification of implementation should be made by the FS Regional Aviation Officer (RAO) and DOI Aviation Managers through the GACC and, for broader scope implementations, by National Aviation Management through NIFC.

Phase 2 - Interim Duty Limitations
When Phase 2 is activated, pilots shall adhere to the flight and day-off limitations prescribed in Phase 1 and the duty limitations defined under Phase 2.

Each flight crew member shall be given an additional day off each fourteen (14) day period. Crews on a twelve (12) and two (2) schedule shall have three (3)

Formatted: Font: 9 pt

Formatted: Font: Bold

consecutive days off (11 and 3). Flight crews on six (6) and one (1) schedules shall work an alternating weekly schedule of five (5) days on, two (2) days off, then six (6) days on and one (1) day off.

Aircraft fixed daily rates and special rates, when applicable, shall continue to accrue during the extra day off. Contractors may provide additional approved crews to maximize utilization of their aircraft. All costs associated with providing the additional crew will be at the contractor's expense, unless the additional crew is requested by the Government.

Phase 3 - Interim Duty Limitations

When Phase 3 is activated, pilots shall adhere to the flight limitations of Phase 1 (standard), the additional day off of Phase 2, and the limitations defined under Phase 3.

Flight crew members shall have a minimum of twelve (12) consecutive hours of uninterrupted rest (off duty) during each duty day cycle. The standard duty day shall be no longer than twelve (12) hours, except a crew duty day extension shall not exceed a cumulative fourteen (14) hour duty day. The next flight crew rest period shall then be adjusted to equal the extended duty day, i.e., thirteen (13) hour duty day, thirteen (13) hours rest; fourteen (14) hour duty day, fourteen (14) hours rest. Extended duty day applies only to completion of a mission. In no case may standby be extended beyond the twelve (12) hour duty day.

Double crews (two (2) complete flight crews assigned to an aircraft), augmented flight crews (an additional pilot-in-command assigned to an aircraft), and aircraft crews that work a rotating schedule, i.e., two (2) days on, one (1) day off, seven (7) days on, seven (7) days off, or twelve (12) days on, twelve (12) days off, may be exempted from Phase 2 Limitations upon verification that their scheduling and duty cycles meet or exceed the provisions of Paragraph a. of Phase 2 and Phase 1 Limitations.

Exemptions of Phase 3 provisions may be requested through the local Aviation Manager or COR, but must be approved by the FS RAO or DOI Area Aviation Manager.

Helitack

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

Organization - Crew Size

BLM - The standard BLM exclusive-use helitack crew is a minimum of seven personnel (PFT supervisor, long-term assistant, long-term lead, and four temporaries). BLM helicopters operated in Alaska need only be staffed with a

Formatted: Font: 9 pt

qualified Helicopter Manager ~~(HELM)~~ (HMGR). Exception to these minimum crew staffing standards must be exempted by the National Aviation Office.
NPS - NPS exclusive use modules will consist of a minimum of 8 personnel.
FS - Regions may establish minimum crew size and standards for their exclusive use helitack crews. Experience requirements for exclusive-use helicopter positions are listed in FSH 5109.17, Chapter 40.

Operational Procedures
The Interagency Helicopter Operations Guide (IHOG) is policy for helicopter operations whether in support of wildland fire or natural resource missions, and provides guidance for helitack and helicopter operations.
FWS - IHOG does not serve as policy for natural resource missions.

Communication
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. Each helitack crew (chase) vehicle will have a programmable VHF-FM mobile radio. Each permanent helibase will have a permanent programmable FM radio base station.

Transportation
Dedicated vehicles with adequate storage and security will be provided for helitack crews. The required Gross Vehicle Weight (GVW) of the vehicle will be dependent upon the volume of equipment carried on the truck and the number of helitack crewmembers assigned to the crew.

~~Safety~~
~~For information on the risk assessment and management, see the IHOG, Chapter 3.~~
BLM - Minimum vehicle configuration for a seven person crew will consist of one Class 661 Helitack Support Vehicle and one Class 156, 6-Pack pickup or Class 166 carryall.

Training and Experience Requirements
All helitack members will meet fire qualifications as prescribed by the National Wildfire Coordinating Group (NWCG) 310-1 and their agency manual requirements. The following chart establishes experience and training requirements for FS, BLM, NPS, and FWS Exclusive Use, Fire Helicopter Crew Positions.

Formatted: Font: 9 pt

Formatted: Font: Bold

Formatted: Font: 9 pt

Exclusive Use Fire Helicopter Position Requisites			
POSITION 1	MINIMUM PREREQUISITE EXPERIENCE 2	MINIMUM REQUIRED TRAINING 3	CURRENCY REQUIREMENTS
Fire Helicopter Crew Supervisor	One season 4as an Assistant Fire Helicopter Crew Supervisor, ICT4, ~~HELM~~HMGR, HEB2		RT-372 5
Assistant Fire Helicopter Crew Supervisor	One season as a Fire Helicopter Squad Leader, ICT4, ~~HELB or HELM~~HMGR, HEB2 (T)	I-200, S-200, S-215, S-230, S-234, S-260, S-270, S-290, S-371, S-372	RT-372
Fire Helicopter Squad Leader	One season as a Fire Helicopter Crewmember, FFT1, ICT5	S-131, S-133, S-211, S-212	S-2716
Fire Helicopter Crewmember	One season as a FFT2, HECM Taskbook	I-100, S-130, S-190, S-271	S-2716

1 All Exclusive use Fire Helicopter positions require an arduous fitness rating.
2 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).
3 Minimum training required to perform in the position. Each level must have met the training requirements of the previous level(s).
4 A "season" is continuous employment on a full-time wildland fire helicopter crew for a period of 90 days or more.
5 After completing S-372, must attend Interagency Helicopter Manager Workshop (RT-372) every three years.
6 Must receive S-271 or serve as S-271 instructor, once every three years.
Note: Exceptions to the above position standards and staffing levels may be granted, on a case-by-case basis by the BLM National Aviation Office, NPS Regional Office FWS Regional Office, or FS Regional Office as appropriate.
Some positions may be designated as COR/Alternate-COR. If so, see individual Agency COR training & currency requirements.
Fire Helicopter Managers (~~HELM~~HMGR) are fully qualified to perform all the duties associated with Resource Helicopter Manager.

Helicopter Rappel & Cargo Let-Down

Formatted: Font: 9 pt

Formatted: Font: Bold

Any rappel or cargo let-down programs must be approved by the Directors, Fire and Aviation Management.
BLM - BLM personnel involved in an Interagency Rappel Program must have SAM approval.
NPS - Approved is required by the National Office.
FS - Approval is required by the Regional Office.

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.

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 and extended attack 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 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. The management of Large Airtankers is governed by:
BLM - The requirements of the DM' and BLM Manual 9400
FS - Forest Service operates Large Airtankers 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).~~

Formatted: Font: 9 pt

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)

Airtanker Base Operations
Certain parameters for the operation of airtankers are agency-specific. For dispatch procedures, limitations, and times, refer to geographic area mobilization guides and the Interagency Airtanker Base Operations Guide (IATBOG).

Airtanker Base Personnel
There is no identified training for the positions at airtanker bases; the 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 Multi Engine Airtankers
These limitations apply to the time the aircraft arrives over the fire.
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 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, Procedures and Safety

Formatted: Font: 9 pt

Formatted: Font: Bold

The Interagency SEAT Operating Guide (ISOG) (NFES #1844) defines operating standards and is policy for both the DOI and FS.

SEAT Manager Position

In order to ensure adherence to contract regulations, safety requirements, and fiscal accountability, a qualified SEAT Manager (SEMG) will be assigned to each operating location. The SEMG's duties and responsibilities are outlined in the ISOG.

~~Safety~~

~~All SEAT operators and users will adhere to AMD/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.~~

Operational Procedures

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

Depending on location, operator, and availability, SEATs are capable of dropping suppressants, water, or approved chemical retardants. 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 BLM and Forest Service Airtanker base operating plans ~~must include~~will permit SEAT loading ~~criteria~~in conjunction with Large Airtankers.

Communication

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

Aerial Supervision

Aerial supervision resources will be dispatched, when available, for initial and extended attack to enhance efficiency and safety of ground and aerial operations. During initial response operations ~~the recommended~~, aerial supervision ~~in~~ priority order with regard to safety and efficiency ~~is~~are as follows:

ASM

ATGS

ATCO (Leadplane)

Formatted: Font: 9 pt

HLCO Helicopter Coordinator
Smokejumper Spotter
~~HELM~~HEGR (Helicopter Manager)

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

Reconnaissance or Patrol flights
The purpose of aerial reconnaissance or detection flights is to locate and relay fire information to fire management. In addition to detecting, mapping and sizing up new fires, this resource may be utilized to provide ground resources with intelligence on fire behavior, provide recommendations to the IC when appropriate, and describe access routes into and out of fire areas for responding units. Only qualified Aerial Supervisors (ATGS ~~(ATS-~~, ASM~~) and Lead Plane Pilots~~, HLCO and LEAD) are authorized to coordinate incident airspace operations and give direction to aviation assets. Flights with a "Recon[22], Detection or ~~"~~Patrol" designation should communicate with tactical aircraft only to announce location, altitude and to relay their departure direction and altitude from the incident.

Low-level Flight Operations
The only fixed-wing aircraft missions authorized for low-level fire operations are:
Para-cargo.
Aerial Supervision Module (ASM) 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.
PPE is required for all fixed-wing, low-level flights. Helmets are not required for multi-engine airtanker crews, smokejumper pilots and ASM flight/aircrew members.

Congested Area Flight Operations
Airtankers can drop retardant in congested areas under DOI authority given in FAR Part 137. FS 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 ASM/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.

Formatted: Font: 9 pt

Formatted: Font: Bold

A positive communication link must be established between the airtanker coordinator or aerial supervision module (ASM), airtanker pilot(s), and the responsible fire suppression agency official.
The Incident Commander (IC) for the responsible fire agency or designee will advise the ASM/leadplane/airtanker that all non-essential people and movable property have been cleared prior to commencing retardant drops.

Aerial Supervision Module (ASM)
The Aerial Supervision Module is crewed with both a "lead" qualified ~~pilot~~Air Tactical Pilot (ATP) and an Air Tactical Supervisor (ATS). These individuals are specifically trained to operate together as a team. The resource is primarily designed for providing both functions (lead and Air Attack) simultaneously from the same aircraft, but can also provide single role service, as well.

The Air Tactical Pilot is primarily responsible for aircraft coordination over the incident. The Air Tactical Supervisor develops strategy in conjunction with the Operations Section Chief.
BLM - The Interagency Aerial Supervision ~~Module Operations~~ Guide ~~(ASMOG) and Interagency Leadplane Operations Guide (ILOG) are~~is policy for BLM. The Interagency Aerial Supervision Guide is available online at http://www.blm.gov

Operational Considerations
The ASM is a shared national resource. Any operation that limits the national resource status must be approved by the agency program manager. Aerial or incident complexity and environmental considerations will dictate when the ASM ceases low level operations. The ASM flight 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. The crew will request additional supervision resources, or modify the operation to maintain mission safety and efficiency.

Policy
Only those individuals certified and authorized by the BLM - National Aviation Office, or the FS - National Aviation Operations Officer, will function as an Air Tactical Supervisor (ATS) in an ASM mission profile.

Aerial Supervision Module Program Training and Qualifications
Training and qualification requirements for ASM crewmembers are defined in the Interagency Aerial Supervision Guide ~~Appendix A~~.

Air Tactical Group Supervisor (ATGS)
~~The ATGS is primarily responsible for coordination of aircraft operations and firefighter safety on an incident.~~The ATGS manages incident airspace and controls incident air traffic. Specific duties and responsibilities are outlined in the Fireline Handbook (PMS 410-1) and the Interagency ~~Air Tactical Group~~

Formatted: Font: 9 pt

~~Supervisor's~~Aerial Supervision Guide ~~(NFES 1393)~~. 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.

The following PPE is required for all interagency ATGS operations:
Leather shoes or boots
Full length cotton or nomex pants or flight suit.

Operational Considerations
~~A relief ATGS and aircraft or ASM~~Relief aerial supervision 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~~aerial supervision duties unless they are fully qualified as an ATGS. Air tactical aircraft must meet the avionics typing requirements listed in the ~~Air Tactical Group Supervisor's~~Interagency Aerial Supervision Guide and the pilot must be carded to perform the air tactical mission.

Leadplane
A leadplane is a national resource. The Interagency ~~Leadplane Operations~~Aerial Supervision Guide ~~(ILOG)~~ is agency policy~~.~~ and is available online at http://www.blm.gov Agency policy requires an ASM/leadplane to be on order prior to retardant drops over a congested area. Operations may proceed before the ~~SM1~~ASM/leadplane arrives, if communications are established with on-site resources, authorization is granted from the IC, and the line is cleared prior to commencing retardant operations.

Smokejumper Pilots
The Interagency Smokejumper Pilot Operations Guide (ISPOG) serves as policy for smokejumper pilots' qualifications, training and 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), which has been adopted as policy by the DOI and USDA Forest Service. Additional guidance may be found in the National Interagency Mobilization Guide and supplemented by local Mobilization Guides.

All firefighting aircraft are required to have operative transponders and will use a setting of 1255 when engaged in, or traveling to, firefighting operations (excluding ferry flights), unless given a discrete code by Air Traffic Control (ATC).

Flight planning and Temporary Flight Restriction (TFR) information on World Aeronautical ~~(WAC),~~ Sectional and Global Navigational Charts ~~(GNC)~~ has been

made available at the National Interagency Airspace System website http://airspace.nifc.gov. TFRs are updated every 30 minutes during normal business hours 7 days a week. A tactical chart with TFR specific information with incident names, frequencies and altitudes are available. These charts can be found at http://airspace.nifc.gov/mapping/nifc/index.cfm
Additional references can be found by contacting:
BLM - State Aviation Managers, Regional Airspace Coordinator and the BLM National Aviation Office Airspace Coordinator.
NPS - Regional Aviation Managers
FS - Regional Aviation Safety Officers, Regional Airspace Coordinators and the FS Airspace Program Manager.
FWS - National Aviation Safety and Operations
~~NPS - Regional Aviation Officers.~~

Flight Request and Approval
BLM - 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.
FS - Refer to FSM 5700 for administrative use, FSM 5705 for point-to-point and mission use for types of Forest Service flights. All non tactical flights require a flight schedule to be completed with a flight following method identified prior to departure; with information passed to all responsible dispatch centers.

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

Agency policy requires designating a Flight Manager~~/Chief of Party~~ for point-to-point flights transporting personnel. The Flight Manager~~/Chief of Party~~ ensures compliance with contract requirements and is responsible for coordinating the given flight. They must have received approved Agency Specified training within the last three years. Duties include:
Briefs pilots on missions, frequencies, flight routes, hazards, flight following, passenger briefing requirements, and any other related information required.
Checks the pilots' qualification cards and aircraft data cards for approval and currency.
Ensures that flights are safely conducted and do not deviate from filed Flight Plans or mission profiles without prior authorization.
Initials the flight invoices and routes them according to procedures specified in the contract.

Formatted: Font: 9 pt
Formatted: Font: Bold

Formatted: Font: 9 pt

BLM - All agency flights shall be approved using an aircraft request/flight schedule, USDI form 9400-1a. This form is used to authorize, plan and brief the pilot on non-fire flights.
NPS - Reference RM-60, Appendix 3 for agency specific policy.
FS - Refer to FSM 5710.5 for administrative use, FSM 5705 for point-to-point and mission use for types of Forest Service flights.
~~NPS - Reference RM-60, Appendix 3 for agency specific policy.~~

Mission Flights
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).
PPE is required for any fixed wing mission flight conducted within 500'AGL.
The use of PPE is required for all helicopter flight (point to point and mission) and associated 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.
All personnel will meet training and qualification standards required for the mission.
All passengers must be authorized and all personnel onboard must be essential to 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
Airtanker coordinator operations
Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions
Fire reconnaissance (PPE recommended but not required)
~~Precision reconnaissance~~

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
Rappelling
Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions
Free-fall cargo

Formatted: Font: 9 pt

Formatted: Font: Bold

Fire reconnaissance
~~Precision reconnaissance~~

Flight-Following All Aircraft
Flight-Following is mandatory for all flights. Mission Flights are required to utilize agency flight following (radio or AFF), point-to-point, non-mission flights can utilize Agency or FAA flight following. Refer to the National Interagency Mobilization Guide, section 24.3 for specific direction.
Aircraft Managers, Pilots and Dispatchers are responsible for coordinating and confirming the method of flight following to be utilized. ~~The default standard for interagency fire operations is for all aircraft to maintain positive radio contact with 15 minute check-ins. When agency flight following (radio or automated) is being used, the scheduling dispatch office shall have flight following responsibility until transferred through a documented, positive hand-off. All dispatch centers designated for fire support shall have the capability to transmit and receive "National Flight Following" and Air Guard".~~
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.~~

~~Aircraft operating under certain contracts may not be required to be equipped with AFF and/or FM radios. Consult the appropriate procurement document for the aircraft in question to determine applicability.~~

All dispatch centers designated for fire support shall have the ability to monitor AFF as well as the capability to transmit and receive "National Flight Following" and Air Guard" in all areas where they are flight following aircraft.
If AFF becomes inoperable the aircraft will normally remain available for service, utilizing radio/voice system for flight following. Each occurrence must be evaluated individually and decided by the COR/CO.

~~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 351 Departmental Manual – Flight Operations Standards and Procedures, IHOG Chapter 4, and National and Geographic Area Mobilization Guides for specific direction.~~
~~FS – Refer FSM 5700, FSH 5709 handbooks, IHOG Chapter 4, and National and Geographic Area Mobilization Guides for specific direction.~~

~~Flight Following Point to Point, Non-Mission Flights~~
~~Agency radio communication is not mandatory. Flight following for point to point, non-mission flights shall be accomplished using one of the following methods:~~
~~FAA IFR or VFR flight plan~~

~~Pilot/chief of party shall notify sending/receiving dispatch office of ETD, ETA and ATA. Radio communication with agency dispatch office is not required.~~
~~Agency check-in via radio~~
~~Pilot checks in via radio with agency dispatch office on set intervals during duration of flight (usually every 15 minutes).~~
~~Automated Flight Following (AFF)~~
~~AFF shall be conducted according to the provisions outlined in the National Interagency Mobilization Guide, section 24.3.1~~

~~Flight Following Mission Flights~~
The default standard for lower-48 interagency fire operations is for all aircraft to maintain positive radio contact with 15 minute check-ins.
Agency FM radio capability is required for all mission flights. ~~Flight following for mission flights shall be accomplished using one of the following methods:~~
~~Agency check-ins via radio~~
~~Pilot checks in via radio with agency dispatch office on set intervals during duration of flight (usually every 15 minutes).~~
~~Automated Flight Following (AFF)~~
~~AFF shall be conducted according to the provisions outlined in the National Interagency Mobilization Guide, section 24.3.1.~~Periodic radio transmissions are acceptable when utilizing AFF.
Helicopters conducting Mission Flights shall check-in prior to and immediately after each takeoff/landing per IHOG 4.II.E.2
Aircraft operating under certain contracts may not be required to be equipped with AFF and/or FM radios. Consult the appropriate procurement document for the aircraft in question to determine applicability.
Violation of flight-following standards requires submission of a SAFECOM.

Sterile Cockpit All Aircraft
Sterile cockpit rules apply within a 5-mile radius of the airport. The flight crew will perform no radio or cockpit communication during that time that is not directly related to safe flight of the aircraft from taxi to 5 miles out and from 5 miles out until clearing the active runway. This would consist of reading checklists, communication with Air Traffic Control (ATC), Flight Service Stations, Unicom, or other aircraft with the intent of ensuring separation or complying with ATC requirements. Communications can be accomplished when the audio panels can be isolated and do not interfere with flight operations of the pilot.

Exception: When conducting firefighting missions within 5 miles of an uncontrolled airport, maintain sterile cockpit until departing the traffic pattern and reaching final altitude. Monitor CTAF frequency if feasible while engaged in firefighting activities. Monitor CTAF as soon as practical upon leaving the fire and returning to the uncontrolled airport. When conducting firefighting missions within Class B, C, or D airspace, notify dispatch that ATC communications will have priority over dispatch communications.

Formatted: Font: 9 pt

Formatted: Not Highlight