Chapter 16
Aviation Operations and Resources

Purpose and Scope

Aviation resources are one of a number of tools available to accomplish fire related land management objectives.

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, the effective capacity of the aircraft, and the deployment 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. The risk management process must include risk to ground resources, and the risk of not performing the mission, as well as the risk to the aircrew.

Organizational Responsibilities

National Office

Department of Interior (DOI)
Aviation Management Directorate (AMD)
The Aviation Management Directorate 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 inspection/approval of aircraft and pilots for DOI agencies.

Bureau of Land Management (BLM)
National Aviation Office (NAO) - NAO develops BLM policy, procedures, and standards. It also 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. This includes fire suppression, through strategic program guidance, managing aviation programs of national scope, coordination with AMD, and interagency partners. The Fire and Aviation Directorate has the responsibility and authority, after consultation with State Fire Management Officers, for funding and acquisition of all fire aircraft, prioritizing the allocation of BLM aircraft on a Bureau wide basis, and approving State Office requests to acquire supplemental

aircraft resources. Refer to *BLM National Aviation Plan and Manual 9400* for aviation policy and guides. (Refer to 112 DM 12 for a list of responsibilities.)

Forest Service (FS)

The FS has responsibility for all aspects of its aviation program, including aviation policy development, aircraft acquisition, and maintenance management. In addition, the FS 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.

The Assistant Director (AD), Aviation, is responsible to the Director of Fire and Aviation Management for the management and supervision of the National Headquarters Office in Washington DC, and the detached Aviation Unit in Boise. The AD, Aviation provides leadership, support and coordination for national and regional aviation programs and operations. (Refer to FSM 5704.22 for list of responsibilities.)

The Branch Chief, Aviation Operations reports to the AD, Aviation, and is responsible for national aviation operational management and oversight.

The Branch Chief, Airworthiness reports to the AD, Aviation, and is responsible for national aircraft worthiness and maintenance program management and oversight.

The Branch Chief, Aviation Risk Management reports to the AD, Risk Management and Training and is responsible for the national aviation safety and risk management program and oversight.

State/Regional Office

- ***BLM*** *- 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 Aviation Manager (SAM) is located in each state office. SAMs 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 Region objectives. Several Regions have additional support staff, and/or pilots assigned to support aircraft operations and to provide technical expertise. A Regional aviation*

operations and management plan is required to outline the Region's aviation program objectives and to identify 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 5700 and FSH 5709.16 for list of responsibilities). RAOs report to Director of Fire and Aviation for their specific Region. Regional Aviation Safety Managers (RASMs) are responsible for aviation safety in their respective Regions, and work closely with the RAO to ensure aviation safety is an organizational priority (refer to FSM 5700 and FSH 5709.16 for list of responsibilities). Most Regions have additional aviation technical specialists and pilots who help manage and oversee the Regional aviation programs. Most Regions also have Aviation Maintenance Inspectors, Fixed-wing Program Managers, Helicopter Program Managers, Helicopter Operations Specialists, Inspector Pilots, etc.*

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; 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, risk management and safety, 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, National Aviation Plan (NAP) and applicable aviation guides as referenced in the NAP.*
- ***FWS*** *- Service Manual 330-339, Aviation Management and IHOG.*
- ***NPS*** *- RM-60 Aviation Management Reference Manual and IHOG & IASG.*
- ***FS*** *- FSM 5700, FSH 5709.16 and applicable aviation guides as referenced in policy.*

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

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

Aviation Safety

The FS and the BLM have adopted Safety Management Systems (SMS) as the foundation to our aviation safety program. The four pillars of SMS are Safety Policy, Safety Risk Management, Safety Assurance, and Safety Promotion. SMS is the standard for aviation safety set by the International Civil Aviation Organization (ICAO) and the Federal Aviation Administration (FAA).

SMS focuses on:

- Emphasis on proactive risk management
- Promotes a "Just" culture
- Addresses systemic safety concerns
- Holds the organization accountable
- Identifies "What" so we can manage the manageable
- Communicates the "Why" so the culture can learn from mistakes

The intent of SMS is to improve the aviation culture by increasing hazard identification, reduce risk-taking behavior, learn from mistakes, and correct procedures before a mishap occurs rather than after the accident. More information on SMS is available at the Wildland Fire Lessons Learned Center under the Lessons Learned link at www.wildfirelessons.net. Additionally, the current approved US Forest Service Aviation SMS Guide is available at www.fs.fed.us/fire/av_safety/

Risk Assessment and Risk Management

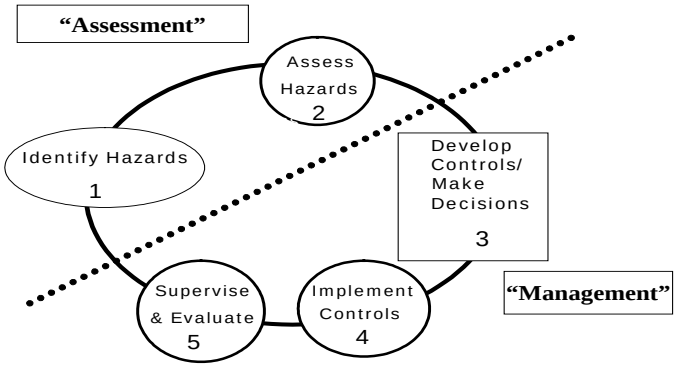
The use of risk management will help to ensure a safe and successful operation. Risk is the probability that an event will occur. Assessing risk identifies the hazard, the associated risk, and places the hazard in relationship to the mission. A decision to conduct a mission requires weighing the risk 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 - 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



How to Properly Refuse Risk (Aviation)

Every individual (government and contracted employees) has the right and obligation to report safety problems affecting his or her safety and has the right to contribute ideas to correct the hazard. In return, supervisors are expected to give these concerns and ideas serious consideration. When an individual feels an assignment is unsafe, he or she also has the obligation to identify, to the degree possible, safe alternatives for completing that assignment. Turning down an assignment is one possible outcome of managing risk.

A "turn down" is a situation where an individual has determined he or she cannot undertake an assignment as given and is unable to negotiate an alternative solution. The turn down of an assignment must be based on assessment of risks and the ability of the individual or organization to control or mitigate those risks. Individuals may turn down an assignment because of safety reasons when:

- There is a violation of regulated safe aviation practices.
- Environmental conditions make the work unsafe.
- They lack the necessary qualifications or experience.

Individuals will directly inform their supervisor that they are turning down the assignment as given. The most appropriate means of documented turn down criteria is using the Aviation Watch Out Situations (page 52, *IRPG*).

Supervisors will notify the Air Operations Branch Director (AOBD) or unit aviation leadership immediately upon being informed of a turn down. If there is no AOBD, notification shall go to the appropriate Section Chief, the Incident Commander or local fire and aviation staff. Proper handling of turn downs provides accountability for decisions and initiates communication of safety concerns within the incident organization.

If the assignment has been turned down previously and the supervisor asks another resource to perform the assignment, he or she is responsible to inform the new resource that the assignment had been turned down and the reasons why. Furthermore, personnel need to realize that a "turn down" does not stop the completion of the assigned operation. The "turn down" protocol is an integral element that improves the effective management of risk, for it provides timely identification of hazards within the chain of command, raises risk awareness for both leaders and subordinates, and promotes accountability.

If an unresolved safety hazard exists the individual needs to communicate the issue/event/concern immediately to his or her supervisor and document as appropriate.

Aviation Safety Support

During high levels of aviation activity it is advisable to request an Aviation Safety and Technical Assistance Team (ASTAT). An ASTAT's purpose is to enhance risk management, and assist and review aviation operations on wildland fires. An ASTAT should be requested through the agency 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 shall 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)

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 to conduct an aviation safety briefing. The pilot should also receive a mission briefing from the government aircraft manager Refer to the *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. 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.

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

Aerial Applications of Wildland Fire Chemical Safety

Chapter 12 contains information concerning the aerial application of wildland fire chemicals.

SAFECOM

The DOI and the FS have an incident/hazard reporting form called The Aviation Safety Communiqué (SAFECOM). The database, available at https://www.safecom.gov/ fulfills the Aviation Mishap Information System (AMIS) requirements for aviation mishap reporting for the DOI agencies and the FS. Categories of reports include: Accidents, Airspace, Hazards, Incidents, Maintenance, Mishap Prevention, and Kudos. The system uses the SAFECOM Form AMD-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 vendors/cooperators) with knowledge of an incident/hazard should complete a SAFECOM. The SAFECOM form, including attachments and pictures, should be entered directly on the internet at https://www.safecom.gov/ or faxed to the Department of the Interior's Aviation Management Directorate, Aviation Safety (208)433-5069 or to the FS at (208) 387-5735 ATTN: SAFETY. Electronic cc copies are automatically forwarded to the National, Regional, 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

Notification to the FS or AMD and DOI agency Aviation Safety Managers is required for 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.

Low-level Flight Operations

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

- Para-cargo.
- Aerial Supervision Module (ASM) and Lead/Air Tanker Coordinator (ATCO) 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.
- 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/Lead/ATCO is ordered to coordinate aerial operations.

- The air traffic control facility responsible for the airspace is notified prior to or as soon as possible after the beginning of the operation.
- A positive communication link must be established between the ASM or Lead/ATCO, airtanker pilot(s), and the responsible fire suppression agency official.
- The 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.

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 FS. It is located at www.airspacecoordination.net. Additional guidance may be found in the *National Interagency Mobilization Guide* and supplemented by local Mobilization Guides.

Some state and FS units have Memorandums of Understanding (MOUs) with local military airspace authorities for airspace coordination. Briefings from Unit Aviation Managers/Officers (UAM/UAO) are crucial to ensure that any local airspace information is coordinated before flight.

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

Additional coordination information can be found by contacting:

- ***BLM*** *- State Aviation Managers, National Airspace Program Manager*
- ***NPS*** *- Regional Aviation Managers*
- ***FS*** *- Regional Aviation Officers, National Airspace Program Manager*
- ***FWS*** *- National Aviation Safety and Operations*

Flight Request and Approval

- ***BLM –****Reference the BLM National Aviation Plan, Chapter 3, available at: http://www.blm.gov/mifc/st/en/prog/fre/Aviation/Administration.html*
- ***NPS*** *- Reference RM 60, Appendix 3 & 4.*
- ***FS*** *- Refer to FSM 5711.3 for administrative use, FSM 5705 for point-to-point and mission use for types of FS flights.*

Point-to-Point Flights

A “Point-to-point” flight is one that originates at one developed airport or permanent helibase and flies directly to another developed airport or permanent

helibase with the sole purpose of transporting personnel or cargo (this term does not apply to flights with a scheduled air carrier on a seat fare basis). These types of flights are often referred to as "administrative" flights and only require the aircraft and pilot to be carded and approved for point-to-point flight. A point-to-point flight is conducted higher than 500 feet above ground level (AGL).

Agency policy requires designating a Flight Manager for point-to-point flights transporting personnel. The Flight Manager is a government employee that is responsible for coordinating, managing, and supervising flight operations. The Flight Manager is not required to be on board for most flights. For those flights that have multiple legs or are complex in nature a Flight Manager should attend the entire flight. The Flight Manager will meet the qualification standard for the level of mission assigned as set forth in the *Interagency Aviation Training Guide* (IAT).

- ***BLM –****Reference the BLM National Aviation Plan, Chapter, available at: http://www.blm.gov/mifc/st/en/prog/fre/Aviation/Administration.html*
- ***NPS -*** *Reference RM-60, Appendix 3 for agency specific policy.*
- ***FS -*** *Refer to FSM 5711.3for administrative use, FSM 5705 for point-to-point and mission use for types of FS flights.*

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 below 500'AGL. Flight helmets are not required for multi-engine airtanker crews, smokejumper pilots and ASM flight/aircrew members.
- Required attire for ATGS and fire reconnaissance are:
  - Leather shoes or boots
  - Natural fiber shirt, full length cotton or nomex pants, or flight suit
- The use of full PPE is required for all helicopter flights (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.
- Agency FM radio capability is required for all mission flights.
- 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, or surface conditions

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
- Fire reconnaissance

Flight-Following All Aircraft

Flight-Following is mandatory for all flights. Refer to the *National Interagency Mobilization Guide* for specific direction.

- Agency FM radio capability is required for all mission flights.
- For mission flights, there are two types of Agency Flight Following: Automated Flight Following (AFF) and radio check-in. AFF is the preferred method of agency flight following. If the aircraft and flight following office have AFF capability, it shall be utilized. Periodic radio transmissions are acceptable when utilizing AFF. Reference the AFF procedures section of the *National Interagency Mobilization Guide* for more information.
- 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"
- 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.
- Helicopters conducting Mission Flights shall check-in prior to and immediately after each takeoff/landing per IHOG 4.II.E.2

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 by passengers or air crew members can be accomplished when the audio panels can be isolated and do not interfere with flight operations of the flight crew.

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.

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. This 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.

Decisions and procedures for implementation will be made on a coordinated, interagency basis, involving the GACC, NICC, NMAC and National Aviation Representatives at NIFC and Aviation Contracting Officers.

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) 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.

Aviation Assets

Typical agency aviation assets include: Helitack or Rappel, Aerial Supervision (ATGS, Lead, and ASM), Large (multi-engine) Airtankers, Single Engine Airtankers, and Smokejumpers.

- ***BLM -*** *All BLM acquired aircraft (exclusive use, On-Call, and CWN) are available to move to areas of greatest 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.*

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 size for a type 3 helicopter is a minimum of seven personnel (supervisor, assistant, squad boss, and four crew members). The standard BLM exclusive–use helitack crew size for a type 2 helicopter is a minimum of ten personnel (supervisor, assistant, squad boss, and seven crewmembers). BLM helicopters operated in Alaska need only be staffed with a qualified Helicopter Manager (HMGB).*
- ***NPS -*** *Helicopter Exclusive Use modules will consist of a minimum of 8 fire funded personnel. The NPS regions may establish larger crew size and standards for their exclusive use helicopter crews based on the need for an all hazard component (Fire, SAR, Law Enforcement, and EMT). Exception to minimum helicopter crew staffing standards must be approved by the National Aviation Office. NPS Helicopters operated in Alaska need only be staffed with a qualified Helicopter Manager (HMGB).*
- ***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) NFES 1885 is policy for helicopter operations.

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 and should be provided a VHF-AM base station radio.

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.

- ***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.

Non-Exclusive Use HECM's and HMGB's should also meet the following currency requirements.

Exclusive Use Fire Helicopter Position Prerequisites			
POSITION[1]	MINIMUM PREREQUISITE EXPERIENCE[2]	MINIMUM REQUIRED TRAINING[3]	CURRENCY REQUIREMENTS
Fire Helicopter Crew Supervisor	One season [4]as an Assistant Fire Helicopter Crew Supervisor, ICT4, HMGB, HEB2		RT-372[5] RT-130
Assistant Fire Helicopter Crew Supervisor	One season as a Fire Helicopter Squad Boss, ICT4, HMGB, HEB2 (T)	I-200, S-215, S-234, S-260, S-270	RT-372[5] RT-130
Fire Helicopter Squad Boss	One season as a Fire Helicopter Crewmember, FFT1, ICT5	S-211, S-212	RT-130
Fire Helicopter Crewmember	One season as a FFT2, HECM Taskbook	S-271	RT-130

[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 and qualification 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 in a primary wildland fire position for a period of 90 days or more.
[5] After completing S-372, must attend Interagency Helicopter Manager Workshop (RT-372) within three years and every three years thereafter.

- *FS- 5109.17_27.1 requires biennial attendance after certification for the position occurs.*

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 (HMGB) are fully qualified to perform all the duties associated with Resource Helicopter Manager.

Helicopter Rappel & Cargo Let-Down

Any rappel or cargo let-down programs must be approved by the appropriate agency national headquarters.

- ***BLM*** *- BLM personnel involved in an Interagency Rappel Program must have SAM approval.*
- ***NPS*** *- Approval is required by the National Office.*
- ***FS*** *- Approval is required by the National 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 (BLM), or Director of Fire and Aviation (FS).

Aerial Ignition

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

Fire Chemical Avoidance Areas

National Forest lands may have mapped avoidance areas for Threatened, Endangered, Proposed, Candidate, or Sensitive species and waterways that are excluded from aerially applied wildland fire chemicals. Pilots, aerial supervision personnel, and others affiliated with ordering and delivering aerially applied wildland fire chemicals should inquire prior to initial dispatch for any Forest Service fire to determine if mapped avoidance areas are located on National Forest lands within or near the fire area to ensure wildland fire chemicals will not enter an avoidance area.

Misapplication into these areas shall be reported. See Chapter 12 (Suppression Chemicals and Delivery Systems) for more details.

Aerial Supervision

Aerial supervision resources will be dispatched when available to initial/extended attack incidents in order to enhance safety, effectiveness, and efficiency of aerial/ground operations.

When aerial supervision resources (ATGS, Lead, or ASM) are collocated with airtankers, they should be launched together to maximize the safety of the flight crews, the efficiency of chemical delivery, and the effectiveness of the fire chemical.

Incidents with three or more aircraft over/assigned to them should also have aerial supervision in the form of ATGS or ASM.

Policy dictates additional aerial supervision requirements which are referenced in the *Interagency Aerial Supervision Guide* (NFES 2544).

Air Tactical Group Supervisor (ATGS)

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 Aerial Supervision Guide*. 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 attire is required for all interagency ATGS operations:

- Leather shoes or boots
- Natural fiber shirt, full length cotton or nomex pants, or flight suit.

Operational Considerations

- 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 aerial supervision duties unless they are fully qualified as an ATGS.
- Air tactical aircraft must meet the avionics typing requirements listed in the Interagency Aerial Supervision Guide and the pilot must be carded to perform the air tactical mission. Rotor-wing pilots are not required to be carded for air tactical missions.
- Ground resources will maintain consistent communication with aerial supervision in order to maximize the safety, effectiveness, and efficiency of aerial operations.

Leadplane

A leadplane is a national resource. The *Interagency Aerial Supervision Guide* is agency policy and is available online at http://www.blm.gov/nifc/st/en/prog/fire/Aviation/aerial_supervision.html.

Agency policy requires an ASM/or Lead/ATCO to be on order prior to aerial applications over a congested area. Operations may proceed before the ASM/or Lead/ATCO arrives, if communications are established with on-site resources, authorization is granted from the IC, and the line is cleared prior to commencing water/chemical application operations.

Aerial Supervision Module (ASM)

The Aerial Supervision Module is crewed with both a Lead/ATCO qualified 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/ATCO 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 ATS develops strategy in conjunction with the Operations Section Chief.

- ***BLM -*** *The Interagency Aerial Supervision Guide is policy for BLM. The Interagency Aerial Supervision Guide is available online at http://www.blm.gov/nifc/st/en/prog/fire/Aviation/aerial_supervision.html*

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* (NFES 2544).

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, ASM, HLCO and Lead/ATCO) are authorized to coordinate incident airspace operations and give direction to aviation assets. Flights with a "Recon, 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.

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. The GACC will ensure that all support functions (e.g. dispatch centers and tanker bases) are adequately staffed and maintained to support the mobilization of aircraft during normal and extended hours.

For aviation safety and policy concerning wildland fire chemicals see chapter 12 (Suppression Chemicals and Delivery Systems).

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*** *- FS operates Large Airtankers under FSM 5703 and Grant of Exemption 392 as referenced in FSM 5714.*

Categories

Airtanker types are distinguished by their retardant load:

- Very Large Air Tankers (VLAT)- more than 3,000 gallons
- Type 1 - 3,000 gallons
- Type 2 - 1,800 to 2,999 gallons
- Type 3 - 800 to 1,799 gallons (includes CL-215/415 Water Scoopers)
- 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 identified training for the positions at airtanker bases; the *Interagency Airtanker Base Operations Guide* (*IATBOG)* contains a chart of required training for each position. It is critical that reload bases are prepared and staffed 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

Refer to the *Interagency Aerial Supervision Guide* (NFES 2544).

Single Engine Airtankers

Single Engine Airtanker (SEAT) Operations, Procedures, and Safety

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*. To maintain incident qualifications currency a SEAT Manager is required to attend RT-273 every three years. Elements and criteria of RT-273 can be found in the *Field Managers Course Guide*, PMS 901-1.

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 (500 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 FS Airtanker base operating plans will permit SEAT loading in conjunction with large airtankers.

Smokejumper Pilots

The *Interagency Smokejumper Pilot Operations Guide (ISPOG)* serves as policy for smokejumper pilot qualifications, training, and operations.

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