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.

In addition to the priorities listed in the *National Interagency Mobilization Guide*, Chapter 10 under headings "Total Mobility" and "Priorities", mobilization of aircraft should be based on optimizing the use of exclusive-use contracted aircraft. Call-when-needed aircraft will be the last ordered and the first released. The exception to this is use for initial action response and capability.

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)

Office of Aviation Services (OAS)
The Office of Aviation Services (OAS) is responsible for the coordination of aviation policy development and maintenance management within the agencies of the Department of the Interior (DOI). The OAS has no operational responsibility. The OAS 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 OAS, 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.

National Park Service (NPS)
The Branch of Aviation develops NPS policy, procedures, and standards for all
fire and non-fire aviation activities. This includes providing guidance on fire
suppression, as well as standardizing aviation programs at the national level,
coordinating with OAS and interagency partners. The Branch of Aviation also
has responsibility for operational execution of the aviation program. The Branch
ensures personnel receive aviation training, provides internal training for fleet
pilots, has responsibility for quality assurance and quality control of park
aviation programs and provides fiscal analysis to determine numbers and types
of aircraft for the bureau.

Bureau of Indian Affairs (BIA)
The NAO is responsible for supporting all BIA Aviation programs through an
active and professional aviation organization that:
- Develops and coordinates efficient aviation policy and management
  processes;
- Provides guidance for aviation programmatic and operational risk
  management;
- Leads aviation safety assurance and promotion programs;
- Provides aircraft acquisition support as specified by Indian Affairs
  management objectives; and
- Develops and promotes a skilled aviation management workforce.

National Office – U.S. Department of Agriculture

Forest Service (FS)
The FS has responsibility for all aspects of its aviation program, including
aviation policy and budget development, aircraft acquisition, aircraft operations,
aviation safety and risk management, budget, pilot standardization, and
airworthiness. In addition, the FS has operational responsibility for functional
oversight of aviation assets and facilities, operational coordination and
utilization, 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 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, Pilot Standardization reports to the AD, Aviation, and is responsible for pilot and aircrew standardization and approval of agency and contract pilots and aircrew.

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

The Branch Chief, Aviation Business Operations reports to the AD, Aviation and is responsible for policy maintenance and development, budget development, and planning.

The Aviation Strategic Planner reports to the AD, Aviation and is responsible for strategic planning and reporting.

The Branch Chief, Aviation Safety Management Systems 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** – *A Regional Aviation Manager (RAM) is designated for each Region. RAMs oversee the tactical execution of their region's aviation programs, provide technical expertise and aviation safety oversight of the parks in their geographic area. RAMs observe regional aviation activities and provide liaison with the national Branch of Aviation and other agencies as appropriate. 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.*
- **FWS** – *A Regional Aviation Manager (RAM) is designated for each Region. 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.*
- **BIA** –
  - *Provides oversight and approval of the acquisition and use of BIA aircraft within their region;*
  - *Has the authority to prioritize the allocation, reallocation, pre-positioning and movement of all aircraft assigned to the BIA within their region. All movements will be coordinated with the NAO;*
  - *Manages and provides oversight of all BIA aircraft assigned to the region;*
  - *Coordinates with Agencies, Geographical Coordination centers, NAO aircraft coordinators on aviation resources assigned to their region;*
  - *Ensures all region assigned aviation resources are effectively utilized as efficient BIA resources;*
  - *Delegates or designates the RAM, who ensures appropriate aviation roles and positions are filled by qualified personnel;*
  - *Ensures all aviation employees meet DOI and BIA training requirements; and*
  - *Ensures Inter-agency Agreement (IAA) between region and Office of Aviation Services (OAS) Acquisition Services Directorate (ASD) is valid and in force. Coordinate modifications to IAA as projects and missions dictate.*

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** – Unit or Park Aviation Managers have the responsibility to provide aviation expertise and management of aviation resources at each park unit. 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 FSM 5700 Zero Code for a list of responsibilities.*
- ***BIA** – The AAM/UAM manages the unit aviation program by providing technical and management direction of aviation resources to support Agency programs. The AAM/UAM has functional responsibility in the following areas:*
    - *The AAM/UAM is authorized to provide for daily management of all aviation resources;*
    - *Ensures Agency flight compliance with USDI/BIA/Region and Agency policies and regulations;*
    - *Develop and implement the Agency/Unit aviation management plan, as well as specific operating plans for other aviation programs (i.e., Helitack, SEAT, and aerial supervision);*
    - *Ensures completion of the Project Aviation Safety Plan (PASP) with appropriate approvals/briefing of Line Officer;*
    - *Ensures that appropriate training is provided to aviation users and supervisors. Monitors aviation training compliance for the Agency/Unit;*
    - *Designates and assigns an alternate aviation manager when needed;*
    - *Ensures that visiting aircrews have received flight crew briefing/aviation orientation and guides;*
    - *Confirms DOI/BIA/OMB requirements are met and completes the cost analysis requirements and schedules the flight with a qualified vendor;*
    - *Ensures the accuracy of the Aircraft Use Report. Processes and maintains copies and records documenting the flight as required by the DOI manual;*
    - *Confirms that a qualified Flight Manager is assigned to all project/resource flights;*
    - *Is responsible for the distribution and use of the Aviation Boundary Plan/Checklist if one is in place;*
    - *Ensures Agency/Unit Aviation Security Plan is current and implemented in accordance with DOI policy;*
    - *May serve as the COR for BIA exclusive use aircraft on their Agency/Unit if aircraft manager is not current or qualified as such;*
    - *Authorized to order approved aircraft utilizing agency procurement documents and procedures. Also establish priorities and allocate all aircraft assigned to the BIA within their unit or zone; and*
    - *Maintains an up to date aviation reference library with all applicable aviation policy and procedural references.*

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.*
- **NPS** – *RM-60 Aviation Management Reference Manual, IHOG, and IASG.*
- **FWS** – *Service Manual 330-339, Aviation Management and IHOG.*
- **FS** – *FSM 5700, FSH 5709.16 and applicable aviation guides when approved by the agency and referenced in policy.*
- **BIA** – *BIA National Aviation Plan (NAP) and applicable aviation guides as referenced in the NAP.*

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, BLM, and BIA have adopted Safety Management Systems (SMS) as the foundation for the 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; and
- 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 https://www.wildfirelessons.net/home. Additionally, the current approved US Forest Service Aviation SMS Guide is available at https://www.fs.fed.us/managing-land/fire.

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:

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

- **FS –** *FSM 5700. Employees shall use an operational risk management process to evaluate the risk and hazards prior to every flight.*

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; or
- 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 (*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

Aviation Safety and Technical Assistance Team (ASTAT)
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, efficiency, effectiveness, and provide technical assistance while reviewing aviation operations. If an ASTAT cannot be filled internally, the request may be placed with NICC through established ordering channels using individual overhead requests. An ASTAT should 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 appropriate manager(s) as outlined at the in-brief. A team should be developed to fit the need of the requesting unit and may consist of the following:
- Aviation Safety Manager;
- Operations Specialist (helicopter and/or fixed wing);
- Pilot Inspector;
- Maintenance Inspector;
- Avionics Inspector (optional); and
- Aircraft Dispatcher (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 requirement;
- Extreme environmental conditions;
- Improper ground operations;
- Improper pilot procedures;
- Fuel contamination; and
- 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*).

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 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 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 Office of Aviation Services, 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 OAS 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:
- Smokejumper/Para-cargo;
- Aerial Supervision Module (ASM) and Lead operations; and
- Aerial dispensing of retardant, water enhancers and water.

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 Leadplane/ASM flight/aircrew members.

Congested Area Flight Operations

Airtankers can drop retardant in congested areas under DOI authority given in *14 CFR Part 137*.

FS authority is granted under exemption 392, from *14 CFR Part 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;

- A positive communication link must be established between the ASM or Leadplane, airtanker pilot(s), and the responsible fire suppression agency official; and
- 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.

Unmanned Aircraft Systems

Policy

- UAS fire operations shall be conducted under the provisions of the *Interagency Fire Unmanned Aircraft Systems Operations Guide* (PMS 515).
- When UAS are flown for USFS/DOI work or benefit, Federal Aviation Administration (FAA), USFS, and DOI regulations apply.
- All aircraft (to include UAS) purchase, lease, or acquisition **must** follow department procurement policy and procedures.
- All aircraft and pilots employed by the USFS or DOI agencies **shall** be credentialed in accordance with departmental policy.
- UAS flights under USFS operational control **must** adhere to USFS policy and regulations regarding their use. Guidance can be found in FSM 5713.7, the *USFS National Aviation Safety and Management Plan* and at https://www.fs.fed.us/science-technology/fire/unmanned-aircraft-systems.
- UAS flights under DOI operational control **must** adhere to DOI and agency specific policy and regulations regarding their use. Guidance can be found in the *Departmental Manual*, Parts 350-353, and Operational Procedures Memorandum 11 at https://www.doi.gov/aviation/library/opm.
- UAS procured/owned/operated by cooperating agencies (state, local, and International) may be utilized on federally managed fires when cooperative agreements are in place and the aircraft and pilot have been approved by letter nationally or regionally.
- UAS flights conducted by non-participatory entities (e.g., media) must adhere to FAA regulations.
- A Special Government Interest Waiver (SGI) must be issued for beyond visual line of sight (BVLOS) operations within a TFR. SGI requests shall be coordinated through departmental channels.

Personnel

- Four UAS positions are listed in the 310-1:
  - Unmanned Aircraft System Pilot (UASP)
  - Unmanned Aircraft System, Data Specialist (UASD)
  - Unmanned Aircraft System, Manager (UASM)
  - Unmanned Aircraft System, Module Leader (UASL)

Crew Composition
- UAS operations are typically conducted under a crew (module) concept.
- Typical module configuration:
  - Agency operated systems (Type 3 or 4): UASP and UASD
  - Contract systems (Type 1 or 2): UASM and UASD
  - Span of control for multiple UAS operations on the same incident can be mitigated with UASL.

Ordering
- UAS personnel are ordered through established dispatch channels.
- Agency-owned UAS should be designated by make, model, and call sign in the "Special Needs" section of the resource order.
- Federally contracted exclusive use and CWN UAS are national resources. Geographic areas utilizing them will make them available for fires on a priority basis.

Operations
- UAS flight crews utilize established procedures (e.g., Fire Traffic Area) for coordinating flights with aerial supervision/on-scene aircraft.
- Large UAS (typically type 1 and 2) will launch and recover from a "Launch and Recovery Zone" which should be designated on incident aviation planning maps.
- Small (typically type 4) UAS are fireline portable and flights will be conducted through established procedures.

Key Points
- UAS is an effective tool for situational awareness and data collection. Determine the data objective before ordering the resource and flying the mission.
- UAS ICS types are listed in the *Interagency Fire Unmanned Aircraft Systems Operations Guide* (PMS 515).
- UAS training, aircraft, sensors, and capabilities are listed on the Interagency Fire UAS Subcommittee website (see below).
- Personally owned UAS or model aircraft **must not** be used by federal agencies or their employees for interagency fire use.
- Individuals who are determined to have interfered with wildland fire operations may be subject to civil penalties and criminal prosecution.

Additional Information
Interagency Fire UAS Subcommittee – https://sites.google.com/firenet.gov/iuas
- *FAA – https://www.faa.gov/uas*
- *DOI – https://www.doi.gov/aviation/uas*
- *BLM – https://sites.google.com/a/firenet.gov/blm-uas/program*
- *FS – https://www.fs.fed.us/science-technology/fire/unmanned-aircraft-systems*

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. The *NWCG Standards for Airspace Coordination* provides direction and procedures for airspace coordination. Additional guidance may be found in the *National Interagency Mobilization Guide* and supplemented by local mobilization guides.

- *FS – Refer to FSM 5709.16, Chapter 30 for additional airspace information.*

Some BLM, BIA, 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*
- *FWS – National Aviation Safety and Operations*
- *FS – Regional Aviation Officers, National Airspace Program Manager*
- *BIA – Regional Aviation Managers*

Flight Request and Approval

- *NPS – Reference RM 60, Appendix 3 and 4.*
- *FS – Refer to FSM 5709.16, Chapter 30 for all 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 3, available at https://www.nifc.gov/aviation/av_BLMlibrary.html.*
- **NPS** – *Reference RM-60, Appendix 3 for agency specific policy.*
- **FS** – *Refer to FSM 5709.16 Chapter 30 and the Forest Service Administrative Use of Aircraft Desk Reference.*
- **BIA** – *Reference the BIA National Aviation Plan.*

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 Leadplane/ASM flight/aircrew members.
- Required attire for ATGS and fire reconnaissance are:
  - Leather shoes or boots; and
  - 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.
  - **FS** – *Special Use Mission Flight is any flight that is not point-to-point. Special use mission flights require special pilot endorsements, flight evaluations, training, and/or specialized aircraft equipment. For all special use mission flights, all pilots and aircraft must be specifically approved in writing for that flight.*

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

- Water or retardant application;
- Parachute delivery of personnel or cargo;
- Leadplane/ASM/Airtanker operations;

- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, or surface conditions; and
- Aerial Supervision.

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;
- Short-haul operations; and
- Night helicopter operations.

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 not perform 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/Aviation Stand Downs

Aviation stand downs are a means to find time, in an otherwise demanding flight schedule, to reflect on core aviation safety values. In this context, aviation stand downs refer to an administrative decision to keep tactical aviation resources on the ground through all or part of their normal duty day or days.

Interim flight and duty limitations are a method to manage pilot and crew fatigue by reducing the length of the duty day or increasing the number of days off in the normal duty day cycle. During extended periods of high flight activity, fatigue must be mitigated by fire and aviation managers.

Aviation stand downs and interim flight and duty day limitations can be implemented at the Geographic Area or National level. In either case, the procedure for implementation is the same. Requests for implementation of flight and duty limitations, or proposed stand down parameters, will be made through the National Aviation Office through which it originated.

Decisions and procedures for implementation will be made on a coordinated, interagency basis, involving the GACC, NICC, and National Aviation Representatives at NIFC and Aviation Contracting Officers. Details of the proposal will be formalized and coordinated with other affected agencies and implemented through the National Multi-Agency Coordinating Group (NMAC).

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; e.g., Northwest, Great Basin.

Interim flight and duty limitations are written to apply to federal contract resources. States may apply them if they so choose. The interim flight and duty limitations can apply to agency pilots, but additional days off must be coordinated with the agency pilot's supervisor and must follow federal pay and leave regulations.

Phase 1 – Standard Flight and Duty Limitations (Abbreviated Summary)

- 14-hour maximum duty day;
- 8 hours maximum daily flight time for mission flights;
- 10 hours for point-to-point, with a 2 pilot crew;
- A maximum of 42 hours flight time during any consecutive 6-day period. When a pilot acquires 36 or more flight hours in a consecutive 6-day period, the pilot shall be given the following day off. A new 6-day cycle shall begin upon return from any day off;
- Minimum of 10 hours uninterrupted time off (rest) between duty periods; and
- Two days off within any 14-day period.

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/maintenance crew members for fatigue. This authority is currently provided for in agency direction and contract specifications. Aviation managers should consider the following actions:

- Any tactical aircraft flight crew member (airtanker, helicopter, ASM/leadplane, SEAT or air attack) may request an additional day off in conjunction with their normally scheduled day(s) off.
- The additional day off may be granted when requested. Flight crews are encouraged to honestly assess their fatigue level and request an additional day off if they believe it is needed.
- Aircraft availability will be paid when this occurs regardless of whether a relief crew is provided or not.
- When an additional day off is granted, document this in the remarks section of the aircraft payment document.
- In order to assure sufficient coverage, additional days off will need to be coordinated within the currently assigned GACC and communicated to national aviation managers. Coordinate with your aviation managers, contracting officers and dispatch organizations to implement these actions.

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 14-day period. Crews on a 12-and-2 schedule shall have 3 consecutive days off (11-and-3). Flight crews on 6-and-1 schedules shall work an alternating weekly schedule of 5 days on, 2 days off, then 6 days on and one 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 12 consecutive hours of
uninterrupted rest (off duty) during each duty day cycle. The standard duty day
shall be no longer than 12 hours, except a crew duty day extension shall not
exceed a cumulative 14-hour duty day. The next flight crew rest period shall
then be adjusted to equal the extended duty day; i.e., 13- hour duty day, 13 hours
rest; 14- hour duty day, 14 hours rest. Extended duty day applies only to
completion of a mission. In no case may standby be extended beyond the 12-
hour duty day.

Double crews (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., 2 days on, 1 day off, 7 days on, 7 days
off, or 12 days on, 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, HLCO, Leadplane, and ASM), Large (multi-engine) Airtankers, Very
Large Airtankers (VLATs), Single Engine Airtankers (SEATs), 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.*
- ***FS** – All FS aircraft (agency-owned, exclusive use, leased and CWN) are
  available to move to areas of greatest agency need, thereby maximizing
  efficiency and effectiveness. Forest Service units are expected to adhere to
  procedures established in policy for acquisition and use reporting.*
- ***BIA** – All BIA 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*

Regional/Agencies and National Offices are outlined 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 minimum crew size for a BLM exclusive-use Type 3 helicopter is seven personnel. The minimum crew size for a BLM exclusive-use Type 2 helicopter is ten personnel. All BLM exclusive-use crews will consist of key positions including; supervisor, assistant, squad boss, and crew members. The BLM States may establish larger crew size and standards for their exclusive use helicopter crews based on program need. Any increase in crew size will be documented in the respective State Aviation Plan. 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 eight 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 FSFAQG, Chapter 4.*
- **BIA –** *All helicopter personnel responsibilities are outlined in the IHOG. CWN helitack training and currency requirements are contained in the NWCG PMS 310-1. Each region hosting exclusive-use helicopters is responsible for providing essential management, overhead, equipment, facilities and the resources necessary to fully support the helitack crew. Host regions are encouraged to increase helitack crew size minimum requirements to enhance operational efficiency. Recommended minimum staffing levels:*
  - *Type 3 helicopter – 7 helitack personnel*
  - *Type 2 helicopter – 15 helitack personnel*

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 two 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/BIA –** Minimum vehicle configuration for a seven person crew will consist of one Class 661 Helitack Support Vehicle and one Class 156 or Class 166 vehicle.*

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, FWS, and BIA exclusive use, Fire Helicopter Crew Positions.

Non-exclusive use HECM's and HMGB's should also meet the following currency requirements.

Note: The *Interagency Aviation Training Guide* (October 2017) states additional aviation training requirements (A courses). The guide is available at https://www.iat.gov/docs/IAT_Guide_2017_10.pdf.

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, HEBM		RT-372[5] RT-130
Assistant Fire Helicopter Crew Supervisor	One season as a Fire Helicopter Squad Boss, ICT4, HMGB, HEBM(T)	ICS-200, S-215, S-219, 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 Task Book	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.

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 and currency requirements.
- Fire Helicopter Managers (HMGB) are fully qualified to perform all the duties associated with Resource Helicopter Manager.

Helicopter Rappel and 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 SFMO approval.*
- ***NPS/BIA** – 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 I*nteragency 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).

Emergency Medical Short-Haul

The emergency medical short-haul mission is intended to extract injured or ill personnel from areas where a ground based evacuation would expose rescuers to greater risk or where such evacuation would likely cause greater harm or threaten the life or limbs of the patient due to added exposure or time delay. Based on a risk assessment, short-haul transport of personnel/patients may occur over the most reasonable distance to a location where another type of medical transportation is available (e.g., ground ambulance, EMS/life fight, or internal in an agency helicopter).

All emergency medical short-haul programs must be approved by the appropriate agency national headquarters.

- ***NPS/FS/BIA** – National Office approval is required.*

All short-haul operations will comply with the following policy:

- ***NPS** – Helicopter Short-haul Handbook.*
- ***FS** – Emergency Medical Short-Haul Operations Plan (EMSHOP).*

Exemptions to the policy must be requested by the program through the regional office for approval by the National Aviation Office (NPS) or Director of Fire and Aviation (FS).

Aerial Ignition

The *NWCG Standards for Aerial Ignition* (PMS 501) is policy for all aerial ignition activities.

Fire Chemical Avoidance Areas

See Chapter 12 (Suppression Chemicals and Delivery Systems) for guidance.

Aerial Supervision Principles for ATGS, HLCO, ASM, and Leadplane

The response speed of aerial supervision resources contributes greatly to established aggressive initial attack doctrine and should be utilized accordingly.

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 are collocated with airtankers, they will be launched together to maximize the safety, effectiveness, and efficiency of incident operations unless aerial supervision is currently over the incident.

Incidents with three or more aircraft over/assigned to them should also have aerial supervision in the form of ATGS or ASM/Leadplane. A qualified smokejumper spotter (senior smokejumper in charge of smokejumper missions) may coordinate smokejumper operations with on-scene aircraft over a fire until a qualified ATGS arrives.

Operational Procedures and Policy

The *Interagency Aerial Supervision Guide* (*IASG*, PMS 505) provides operational procedures for all aerial supervision resources. The IASG and additional aerial supervision forms are maintained online at the NWCG website https://www.nwcg.gov/publications/505.

The *NIMS Wildland Fire Qualification System Guide* (PMS 310-1) provides training, qualification, and currency standards.

The *IASG* contains additional requirements and is policy for the BLM, FS, BIA, FWS, and NPS.

Air Tactical Group Supervisor (ATGS)

The ATGS coordinates incident airspace and manages incident air traffic. The ATGS is an airborne firefighter who coordinates, assigns, and evaluates the use of aerial resources in support of incident objectives. Specific duties and responsibilities are outlined in the *Wildland Fire Incident Management Field Guide* (PMS 210) and the *Interagency Aerial Supervision Guide* (PMS 505).

Program Management

The air attack program is managed at the national level by agency program managers. The National Interagency Aviation Committee (NIAC) provides guidance through the Interagency Aerial Supervision Subcommittee (IASS), which authorizes an Agency Program Manager/ATGS GACC Representative to provide operational and programmatic oversight at the Geographic Area level.

Training

Classroom training is completed as per the PMS 310-1.

Field (flight) training assignments are coordinated and prioritized by the Geographic Area Training Representatives and Agency Program Manager/ATGS GACC Representatives.

National interagency ATGS training aircraft have been identified and are utilized for the sole purpose of ATGS flight training.

Operational Considerations

- Ground resources will maintain consistent communication on assigned air to ground frequencies with aerial supervision to maximize the safety, effectiveness, and efficiency of aerial operations.
- 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.
- ATGS aircraft must meet the aircraft/avionics typing requirements listed in the IASG 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.

Leadplane

A leadplane is a national shared resource. Any operation that limits the national resource availability must be approved by the agency program manager.

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

Aerial Supervision Module (ASM)

The ASM is a national shared resource.

The ASM is crewed with both a Leadplane qualified pilot (LPIL) and an Air Tactical Supervisor (AITS). These individuals are specifically trained to operate together as a team. The resource is primarily designed for providing both

functions (Leadplane pilot and ATGS) simultaneously from the same aircraft, but can also provide single role service.

The LPIL is primarily responsible for aircraft coordination over the incident. The AITS develops strategy and implements tactical plans through coordination with the IC or designee.

Operational Considerations

Any operation that limits the national resource availability 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–Branch Chief Pilot Standardization will function as an Air Tactical Supervisor (AITS) in an ASM mission profile.

Aerial Supervision Module Program Training and Qualifications

Training and qualification requirements for ASM crewmembers are defined in the *IASG*.

Aerial Supervision Coordination

National coordination and management of leadplane and ASM aircraft and staffing is required to ensure there is aerial supervision coverage, response and capability nationwide. The Forest Service Aerial Supervision Program Manager and Forest Service Fixed-wing Coordinator coordinate and manage aerial supervision staffing, aircraft readiness and availability, capability, and response with pilots, aerial supervisors, regional aviation staff, Bureau of Land Management National Aviation Office staff, and the National Interagency Coordination Center.

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 LPIL) 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

Federally contracted airtankers are national resources. Geographic areas administering these aircraft will make them available for initial attack and extended attack fires on a priority basis. Early-ups for large fire support can have a significant effect on the resource availability late in the day. NICC must be included in this discussion. The rationale for use of airtankers prior to normal start times for large fire support must include obtainable incident objectives in support of ground resources. Host GACCs will check with NICC prior to releasing flight crews on T-1 and T-2 airtankers and VLATs for the day when those resources are not being used within the host area, and could be utilized elsewhere for emerging or ongoing fire activity.

Large airtankers are primarily used for initial attack and are initial attack capable without leadplane/ASM supervision. Very large airtankers are primarily used for large fire support and require leadplane/ASM supervision to be on scene prior to arriving on the fire.

The *National Interagency Mobilization Guide*, Chapter 50, "Airtankers" contains additional direction regarding staffing and maintenance of support functions to mobilize national resources.

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

Federal airtankers are owned and operated by commercial vendors. Some states may contract for commercially-owned airtankers, own airtankers or order airtankers through Compacts either state-to-state or state-to-Canadian Province. The management of airtankers is governed by:
- **BLM –** *The requirements of the DM, BLM NAP, and BLM Manual 9400.*
- **FS –** *Airtankers operate in accordance with 14 CFR Part 137, specific contracts, Grants of Exemption, Forest Service Manual (5700) and Handbook (5709.16) and the National Airtanker Operations Plan.*
- **BIA –** *The requirements of the DM and BIA NAP.*

Airtanker Types
Airtankers are typed according to their load capacity:
- Very Large Air Tankers (VLAT) – 8,000 gallons or more
- Type 1 – 3,000 to 4,999 gallons
- Type 2 – 1,800 to 2,999 gallons
- Type 3 – 800 to 1,799 gallons
- Type 4 – up to 799 gallons

Very Large Airtankers (VLATs)

VLATs have some unique operational considerations including low-level supervision, terrain, airtanker base ramp operations and operations in the Fire Traffic Area (FTA).

- VLATs may be used on fires to augment Type 1, Type 2 and Type 3 airtankers, but not as a replacement.
- Aerial supervision (leadplane or Aerial Supervision Module) is required by contract and interagency policy for VLATs while dropping retardant.
- The leadplane or ASM must be on scene prior to dispatching the VLAT.
- VLATs are less maneuverable than large airtankers and should be used in less challenging terrain that affords better maneuverability and effectiveness for dispensing.
- The VLATs minimum drop height is 200 feet above the top of the vegetation with a target height of 250 feet.
- VLATs require considerable more space and clearance from other aircraft within the FTA and more time to set up for drops.
- Airtanker bases approved for VLATs are listed in the *NWCG Airtanker Base Directory*.

State of Alaska Airtankers

Canadian registered CV-580 airtankers under contract to the State of Alaska can be mobilized to the lower 48 as approved cooperator aircraft. These airtankers have been approved by OAS under 351 DM 4 and OPM-53 for interagency use. Operationally they can be used similar to other federally contracted airtankers and can be directed by U.S. ASM/leadplanes or Canadian Bird Dogs.

Canadian Airtankers and Water Scoopers

Canadian airtankers and scoopers can be activated through the NIFC/CIFFC agreement or through Compacts (US State-to-Canadian Province). These Canadian airtankers and water scoopers typically operate as a "group" with Canadian Bird Dogs as part of their operational model. Bird Dogs have a Canadian Air Attack Officer (AAO) on board and function similar to a U.S. ASM.

The standard operating procedure for the Canadian Airtanker and Water Scooper Groups is as follows:

- Canadian airtankers must be supervised by a Bird Dog or U.S. ASM/leadplane, and must include at a minimum a low level "show me" pass.
- Canadian Bird Dogs may provide low level target identification runs ("show me" pass) for either Canadian or US contracted airtankers.
- Canadian Bird Dogs are not authorized to "lead" U.S. federally contracted airtankers.
- Canadian Bird Dogs can perform the functions of an ATGS.

- U.S. ASM/leadplanes are authorized to "lead" Canadian airtankers.
- Canadian water scoopers can operate with or without their Bird Dog. They do not require aerial supervision unless they request it.

Airtanker Rotation

The Federal national airtanker fleet includes a mix of Exclusive Use (EU), Call When Needed (CWN)/On-Call Type 1 and Type 2 airtankers (Large Airtankers/LATs), Very Large Airtankers (VLATs), or Single Engine Airtankers (SEATs). To ensure consistent utilization, rotation, and management of the national airtanker fleet, the following is interagency direction for the management of airtanker rotation and supplements direction contained in *NWCG Standards for Airtanker Base Operations* (PMS 508) and in *Interagency SEAT Operations Guide* (PMS 506).

All LATs, VLATs and SEATs (including federally approved Cooperator and Canadian) operating from the same base shall be dispatched in rotation based on the type of airtanker requested on a first in/first out basis regardless of contract type (EU, CWN/On-Call or Forest Service owned) or the location of the incident.

First in/first out also applies to airtankers that are requested for a load/return. When an incident requires multiple loads of retardant, Aerial Supervisors/Incident Commanders will notify the appropriate dispatch center of the need for additional retardant and any operational retardant delivery requirements. To ensure timely and effective retardant delivery, dispatch will order the next available airtanker in rotation if an airtanker that meets the requirement of the request is available and located at the load and return airtanker base.

Exceptions

1. Airtankers that do not have an Initial Attack (IA) rated Pilot-in-Command will not be dispatched to a fire unless a leadplane or Aerial Supervision Module (ASM) is on scene upon the arrival of the airtanker.
2. Incident commanders/aerial supervision requests a specific type of resource (e.g., VLAT, LAT, or SEAT).
3. On-scene aerial supervision determines that the use of a specific make/model airtanker is not effective based on factors such as risk, maneuverability in terrain, and/or effectiveness.
4. The next airtanker in rotation has an operating restriction at the base where it is being assigned. Operating restrictions may include fuel and retardant availability, airtanker base or airport restrictions, significant downloading of fuel or retardant based on performance, daylight remaining, or distance to the incident is not considered effective.
5. Repositioning of an airtanker closer to where their maintenance crews or supplies are available. The National Interagency Coordination Center (NICC) will facilitate in coordination with the Geographic Area Coordination Center (GACC).

6. A benefit to the government would be realized by changing the rotation.
    This will be facilitated by the GACC or NICC with consideration to days
    off, mission requirements, and/or anticipated need.
7. Airtankers are returning after day(s) off. Upon returning to availability from
    days off, these airtankers will be at the end of the rotation at the airtanker
    base. Airtankers that work a seven day schedule retain their position in the
    rotation.
8. MAFFS, NICC ordered state cooperators, and NICC ordered Canadian
    airtankers will begin rotation at that base after the contracted and FS owned
    airtanker(s) at the beginning of each day.
9. Water Scoopers will not be included in airtanker base rotations.

Rotation of State Airtankers
Rotation of State resources on State incidents at a state airtanker base is
established by their agency.

In cases where federally approved State airtankers are operated in conjunction
with federally contracted airtankers on an incident primarily on federal lands,
the State airtankers are added to the rotation after the federal airtankers at the
beginning of each day.

Additional Information
Forest Service/DOI contracted airtankers, when assigned to incidents managed
by other agencies or state cooperators remain under the direction of the
Contracting Agency. Forest Service and DOI Contracted airtankers are bound
only by their contract and will be treated fairly and equitability during their
assignment with other federal or state agencies.

Airtanker Payloads

Loading Type 2, Type 1 or VLAT airtankers with water or dropping water
operationally shall not occur unless the Forest Service National Airtanker
Program Manager has been notified. Use of water operationally from these
airtankers will require the following prior to notification:
- Use of retardant is restricted by the fire management plan (FMP) for the
  unit requesting the approval to use water. A copy of the section of the FMP
  restricting use of retardant shall be provided to the Airtanker Program
  Manager with the notification.
  - Prior to ordering an airtanker, the receiving unit should request the
    appropriate water aerial dispensing aircraft, such as a water scooper or
    helicopter.

During pre or post season fires, loading airtankers with water may be necessary
when the nearest airtanker base may not be operational and capable of loading
retardant. Once an airtanker base is operational and can load retardant, use of
water shall cease.

Use of water enhancers (gels) is strictly prohibited in Type 2, Type 1 or VLAT airtankers contracted by the USDA Forest Service.

Large and Very Large Airtanker Coordination

National coordination and management of Forest Service contracted airtankers is required to ensure there is airtanker coverage, response, and capability nationwide. The Forest Service Airtanker Program Manager and Forest Service Fixed-wing Coordinator coordinate and manage airtanker readiness and availability, capability, and response with vendors, National Aviation staff, and the National Interagency Coordination Center.

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 *NWCG Standards for Airtanker Base Operations* (SABO).

All permanent, CWN and temporary bases will have an Airtanker Base Operations Plan (ABOP), and a qualified Airtanker Base Manager (ATBM) prior to operations out of the airtanker base airport. All personnel conducting airtanker base operations should review the SABO and have it available. ATBM's are authorized to manage Single Engine Airtankers (SEAT), the ATBM should review the *NWCG Standards for Single Engine Airtanker Operations* and have it available. Both Large Airtankers as well as SEATs have applicable aircraft contracts that will be available for reference, as well as the National Long-Term Fire Retardant Contract.

Loading Operations
Forest Service contracted airtankers and Modular Airborne Firefighting System (MAFFS) airtankers shall be loaded using a Mass Flow Meter to measure the payload in pounds. Refer to the Forest Service Airtanker Operations Plan for more information.
https://www.fs.fed.us/managing-land/fire/aviation/publications

Airtanker Base Personnel
There is identified training for the positions at airtanker bases; the SABO contains descriptions of Airtanker Base support positions and their roles and responsibilities. The *NIMS Wildland Fire Qualification System Guide* (PMS 310-1) lists required training for these positions.

The ATBM provides supervision and coordination of airtanker base operations. The ATBM may report to the local Aviation Manager and/or Incident Aviation Manager.

Startup/Cutoff Time for Multi Engine Airtankers
Refer to the *Interagency Aerial Supervision Guide* (PMS 505).

Single Engine Airtankers

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

The *NWCG Standards for Single Engine Airtanker Operations* (PMS 506) defines operating standards and is policy for both the DOI and FS. All permanent and temporary SEAT bases will have a SEAT Base Operating Plan, and a qualified Single Engine Airtanker Manager (SEMG) or ATBM prior to operations out of the SEAT base airport.

Single Engine Airtanker Manager Position

The SEMG duties and responsibilities are outlined in the *NWCG Standards for Single Engine Airtanker Operations*. The 310-1 lists required training for the SEMG position, ATBM position, and other base support positions. SEMG's may also refer to the *NWCG Standards for Airtanker Base Operations* (SABO) for base support duties and responsibilities.

The SEMG provides supervision and coordination of SEAT base operations and base support personnel. The SEMG may report to the local Aviation Manager, Incident Aviation Manager, or ATBM if applicable. SEMG's assist in ensuring adherence to contract regulations, safety and policy requirements, and fiscal accountability.

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.

SEAT operations at established airtanker bases or reload bases are authorized. All BLM and FS Airtanker base operating plans will permit SEAT loading in conjunction with large airtankers.

Multi-Engine Water Scoopers

Forest Service contracted exclusive use and CWN multi-engine water scoopers are national resources. Geographic areas administering these aircraft will make them available for initial attack and extended attack fires on a priority basis. Generally, a water scooper manager will be assigned by the Forest Service National Aviation Office. The manager will be on site to coordinate water scooper operations, logistics and water body assessment.

Forest Service multi-engine water scoopers, by contract, shall not use retardant, foam or gels.

Smokejumper Pilots

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

Helicopters

Helicopter Types

The minimum specifications for the typing of helicopters are by allowable payload, number of passenger seats and water or retardant carrying capability.

ICS Type Specifications for Helicopters

Attributes	Type 1	Type 2	Type 3
Useful load at 59°F at sea level	5,000 pounds	2,500 pounds	1,200 pounds
Passenger seats	15 or more	9-14	4-8
Retardant or water carrying capability	700 gallons	300 gallons	100 gallons
Maximum gross takeoff/landing weight	12,501+ pounds	6,000-12,500 pounds	up to 6,000 pounds

The *National Interagency Mobilization Guide*, Chapter 50, contains additional direction regarding staffing and maintenance support functions to mobilize national resources. For aviation safety and policy concerning wildland fire chemicals (water enhancers, retardants and foams), reference https://www.fs.fed.us/rm/fire/wfcs/. Other helicopter information can be found in the *Interagency Helicopter Operations Guide* (PMS 510) at https://www.nwcg.gov/publications/510.

- *FS – There will be NO on-board mixing of wildland fire chemicals on Forest Service-owned, contracted, chartered or leased aircraft. Use of water enhancers in large dip tanks or pumpkin tanks is not recommended, unless the Qualified Product List (QPL) approved mix ratio can be maintained with the constantly changing water/gel mixture and ratio during operations. The ability to maintain the QPL mix ratio is highly unlikely.*

Military or National Guard Helicopters 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).

Modular Airborne Fire Fighting System (MAFFS)

The *MAFFS Operating Plan* (available from the National Interagency Coordination Center) will be used when planning or conducting aviation

operations involving MAFFS military aircraft. Ordering MAFFS is done through the National Interagency Coordination Center (NICC); MAFFS are utilized through a national agreement (see the *National Interagency Mobilization Guide*). Several states have the ability to activate MAFFS through separate agreements that do not require ordering through NICC.

Cooperator Aircraft

Aircraft procured/owned by cooperating agencies (state, local, and International) may be utilized on federally managed fires when cooperative agreements are in place and the aircraft have been approved by letter nationally or regionally.

The purpose of this direction is to keep non-federally approved aircraft under the operational control of the agency providing the aircraft, to the extent possible.

States may use aircraft that have not been identified as an "Approved Cooperator Aircraft" on federal lands when and where the state is the protecting agency in a reciprocal or off-set agreement or when state lands are threatened and the state maintains operational control of the aircraft.

The following conditions apply for non-federally approved aircraft:
- No federal employees are allowed to ride on board the aircraft.
- No federal employee may be assigned to a position that exercises contractual control.
- They are approved to have federal personnel load retardant at federal airtanker bases, regardless of jurisdiction.
- Federal personnel may provide aerial supervision (ATGS, ASM, HELCO, leadplane) under existing standard procedures and agreements.
- They remain under state operational control regardless of the agency affiliation of the firefighters directing the aircraft on an incident with state jurisdiction.
- They are approved to interact with federal dispatch personnel as long as the aircraft remains under the operational control of the state or for safety reasons.

Under emergency circumstances, where **human life is immediately at risk** by wildland fire on lands under federal protection, a federal line officer can approve the use of non-federally approved aircraft to address the immediate threat. Under circumstances where a Governor has declared a state of emergency, a federal line officer at the State/Regional level, may consider any fire under federal protection, as an immediate threat to human life. This exemption must only take place when sufficient federal firefighting aircraft are not readily available to meet the emergency need. Line officers are encouraged to consult with their agency aviation management personnel to aid in decision-making.

As exemptions are exercised, they must be documented by the approving federal line officer in accordance with their agencies guidance to include submitting a SAFECOM within 24 hours.