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Forest Service Standards for UAS Operations

Forest Service
Fire and Aviation
Management

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Signatures and Approval

Developed

DIRK GILES Digitally signed by DIRK GILES Date: 2020.06.26 09:58:46 -06'00' Date:

Dirk Giles, UAS Program Manager

Reviewed

JOHN HAMILTON Digitally signed by JOHN HAMILTON Date: 2020.06.29 09:27:09 -06'00' Date:

John Kent Hamilton, Branch Chief, Aviation Safety Management Systems

Reviewed

ABRAHAM FANDRICH Digitally signed by ABRAHAM FANDRICH Date: 2020.06.29 10:03:20 -06'00' Date:

Abe Fandrich, Branch Chief, Pilot Standardization

Reviewed

Digitally signed by JOHN NELSON Date: 2020.07.01 09:33:45 -06'00' Date:

John Nelson, Branch Chief, Airworthiness

Reviewed

Digitally signed by PAUL LINSE Date: 2020.07.01 09:40:26 -06'00' Date:

Paul Linse, Branch Chief, Aviation Operations

Reviewed

JAMI ANZALONE Digitally signed by JAMI ANZALONE Date: 2020.07.01 11:11:37 -06'00' Date:

Jami Anzalone, Regional Aviation Officer Representative

Approved

YOLANDA SALDANA Digitally signed by YOLANDA SALDANA Date: 2020.07.01 10:20:07 -07'00' Date:

Yolanda Saldana, Assistant Director Aviation (acting)

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Chapter 1: National UAS Operations Plan Introduction

Philosophy & Mission Statement

The following procedures are intended to promote safe, efficient and lawful operation of unmanned aircraft systems (UAS) to support the mission of the United States Forest Service (USFS or FS), including fire management and natural resource management. Safety, above all else, is the primary concern in each and every operation, regardless of the nature of the mission.

Forest Service Aviation Mission

To provide safe, efficient and coordinated aviation support for agency operations; to support partnership agreements; and to meet current and future needs through innovation and technology in order to sustain the health, diversity and productivity of the Nation's forests and grasslands.

UAS operations

The FS will ensure UAS are used appropriately to further our mission with public safety, privacy and civil rights guarded. We will remain transparent in our UAS utilization. The FS will only use UAS when it is the right tool for the job and only when the proper approvals and risk management plans are in place.

When operating UAS, FS operators shall abide by applicable FS and applicable 14 CFR Parts 91 and 107.

FAA Order 8900.1, Volume 16, Unmanned Aircraft Systems (UAS) link provided for reference to Federal Aviation Administration (FAA) policy and regulations.

This document is organized to provide a reference between controlling UAS policy and regulation and operational standards and best practices necessary for conducting safe, successful, efficient operations. UAS pilots, managers and users should familiarize themselves with the entire Forest Service Standards for UAS Operations and reference relevant sections for mission-specific planning purposes. The appendices provide standard operational and administrative forms, checklists, and other job aids.

Scope

This document provides guidance for all FS operational control and non-operational control missions, operations and management utilizing unmanned aircraft systems (UAS).

Agency UAS mission conducted under the fire management application will adhere to the Interagency Fire UAS Operations Guide (PMS 515) or to the *Forest Service Natural Resource Management UAS Program Management Guide* as applicable.

14 CFR 1.1 defines "aircraft" as a device that is used or intended to be used for flight in the air. UAS are considered aircraft and must comply with applicable regulations, policies and procedures required by FAA.

UAS are defined as an aircraft and include the associated elements (including all communication links and the components that control the unmanned aircraft) that are required for safe and efficient operation.

Authority

1. FSM 5713.7 and FSH 5709.16 and Chapter 36.7 establish this document, The FS Standards for UAS Operations provide direction and guidance for all FS UAS agency operations.

2. This standard follows USDA Departmental Regulation 3465.002 Privacy, Civil Rights, and Civil

Liberties with Unmanned Aircraft Systems (UAS), Office of the Chief Information Office, October 7, 2019.

3. Executive Order 18355 (December 21, 2018) Promoting Active Management of America's Forests, Rangelands and other Federal Lands to Improve Conditions and Reduce Wildfire Risk, Section 4, direct the Secretaries, in coordination with the Administrator of the Federal Aviation Administration, to maximize appropriate use of unmanned aerial systems to accelerate forest management and support firefighting and post-fire rehabilitation in forests, rangelands and other Federal lands.

4. This standard follows the direction from the Dingell Act (S. 47) including:
   - Establishment of an UAS program.
     - Not later than 180 days after the date of enactment of this Act (March,12 2019), the Secretary, in consultation with the Secretary of Agriculture, shall establish a research, development, and testing program, or expand an applicable existing program, to assess unmanned aircraft system technologies, including optionally piloted aircraft, across the full range of wildland fire management operations in order accelerate the deployment and integration of those technologies into the operations of the Secretaries.
   - Expanding use of unmanned aircraft systems on wildfires.
     - In carrying out the program established under paragraph (2), the Secretaries, in coordination with the Federal Aviation Administration, State wildland firefighting agencies, and other relevant Federal agencies, shall enter into an agreement under which the Secretaries shall develop consistent protocols and plans for the use on wildland fires of unmanned aircraft system technologies, including for the development of real-time maps of the location of wildland fires.

Relationship to Existing Agency Guidance

This document supplements Forest Service Manual (FSM) and Forest Service Handbook (FSH). In the event of conflicting guidance, FSM, FSH, 14 CFR, and other laws and regulations of the Federal Government take precedence.

UAS Operations in the National Airspace System

Forest Service programs and personnel have the authority to conduct UAS operations in the National Airspace System with the following stipulations:

1. When the operation adheres to the requirements, procedures and standards within applicable FSM/FSH direction, the *National Operations Plan,* and the provisions of 14 CFR Part 107 (Part 107). Waiver requests under Part 107 will be reviewed by the National UAS Program Manager prior to submittal to FAA.
2. When the operation is conducted under authorizations granted using the FAA's *Low Altitude Authorization and Notification Capability* system (LAANC). Waiver requests outside of the LAANC systems shall be reviewed by the Forest Service UAS Program Manager or designee prior to submittal to the FAA.
3. When the operation is conducted utilizing the USFS/FAA Memorandum of Agreement Regarding Operation of Small Unmanned Aircraft Systems in Class G Airspace.
4. When the operation follows the provisions outlined in the *USFS Blanket Certificate of Authorization* for operating in Class G airspace.

5. When the operation is conducted under a standalone *Certificate of Waiver or Authorization* (COA) for a specific mission. COAs will be coordinated with the National UAS Program Manager. Standard lead time is 180 days.
6. When the operation is conducted under a *Special Government Interest Waiver* (SGI) or *Emergency Certificate of Waiver or Authorization* (ECOA) requested through the National UAS Program Manager or designee in coordination with the FAA.
7. When the operation is conducted utilizing the MOA regarding *Beyond Visual Line of Sight Operations* (BVLOS) of Unmanned Aircraft Systems in Support of Emergency Assistance within an Active Temporary Flight Restriction or FAA Certificate of Authority (COA).

In addition, all UAS operations within restricted, prohibited and warning areas must be authorized by the controlling authority. Forest Service UAS operators (Pilots), and managers must comply with any restrictions placed on the operation by the controlling authority.

Chapter 2: Organizational Structure and Personnel

Introduction

The number of personnel required for conducting UAS missions varies according to the mission. In very simple situations, such as takeoffs and landings to maintain currency, a remote pilot may be capable of safely and effectively completing the mission alone. Some missions may be complex and require many personnel with specialized responsibilities. Mission-specific operations plans and/or risk assessments establish the staffing roles and responsibilities for those missions.

Primary UAS Roles and Responsibilities

FSM 5700 and FSH 5709.16 defines the roles and responsibilities for all Forest Service personnel involved in aviation management. The following UAS-specific roles and responsibilities are additional to those.

State and Private Forestry - Fire and Aviation Management

The Forest Service Fire and Aviation (FAM) program within State and Private Forestry plays a critical role in promoting, supporting, administering, and coordinating all UAS activities within the agency. The Aviation division is responsible for providing safe, efficient and coordinated aviation support for agency operations; supporting partnership agreements; and meeting current and future needs through innovation and technology in order to sustain the health, diversity and productivity of the Nation's forests and grasslands.

UAS Executive Steering Committee and UAS Advisory Group

The Forest Service has established a *UAS Executive Steering Committee* (ESC) and UAS Advisory Group (UASAG) to oversee and coordinate UAS issues for the Forest Service. The UAS Executive Steering Committee will include representation from Regional executive leadership, as well as each Deputy Area and Directorate with UAS operations, policy, or acquisition interests. The ESC advises the Chief and Executive Leadership Team (ELT) on UAS matters and provides broad policy recommendations on the integration of UAS within Forest Service operations. The ESC will coordinate efforts with State and Federal partners and develop Forest Service policy on the operation and use of UAS, to include recreational use or any other use on National Forest System lands. The Director of Fire and Aviation Management is the chair of the ESC and the group meets annually or bi-annually to address issues associated with the UAS program.

The *UAS Advisory Group* (UASAG) is a representation of programs throughout the agency; including specialists in aviation, fire, law enforcement, communications, engineering, forest management, rangelands management,

vegetation ecology, invasive species management, lands, minerals and geology, forest health protection, soils, remote sensing, acquisition, recreation, wilderness, information management and technology, and research and development. In addition to advising the ESC, the UASAG focuses on UAS strategic planning and operational direction, assessment of the implications of decisions on current or proposed manned aircraft programs, and on risk assessment of any proposed UAS operations. The UASAG is chaired by the National UAS Program Manager and is independent of the UASESC but receives task orders from the ESC and serves as advisors to the ESC as requested.

Branch Chief Airworthiness

The Branch Chief, Airworthiness has the authority to review and approve all inspections, maintenance actions and Return-to-Service determinations for all Forest Service-owned and/or operated aircraft. This authority may be delegated to qualified inspectors. Coordination between the National UAS Program Manager and the Branch Chief Airworthiness will be essential for safe and efficient programmatic growth.

National UAS Program Manager

The National UAS Program Manager provides the overall leadership, direction and vision for the Forest Service's UAS activities. This position coordinates across the agency to establish UAS specifications, protocols, and standards to ensure aviation safety and individual privacy, civil rights, and civil liberties protections in compliance with applicable laws, regulations, and policies. Key internal relationships include, but not limited to:

1. Branch Chiefs in Aviation Management
2. Regional Aviation Management
3. Agency Program leadership and staff (programs with UAS business cases)
4. Forest Service UAS Pilots and support staff
5. NIFC Incident Support Branch contracting (all UAS acquisitions and UAS flight service contracting is performed by NIFC ISB),
6. National Technology and Development Program UAS specialists,
7. Geospatial Technology and Applications Center geospatial specialists.

Key external relationships include other Department of Agriculture Agency UAS Program Managers, Department of the Interior UAS Program Managers and staff, Federal Aviation Administration UAS staff, FAA Interagency Fire UAS Subcommittee members, and Department of Homeland Security UAS officials.

In addition, the National UAS Program Manager is the permanent Forest Service representative to the National Wildfire Coordinating Group (NWCG) Interagency Fire UAS Subcommittee. The National UAS Program Manager has authority to either 1) remove a UAS Pilot's flight permission card or 2) recommend/deny entry into trainee status if UAS Pilot deficiencies and/or safety hazards exist.

National UAS Fleet Manager

The National UAS Fleet Manager is responsible for the tracking of the Forest Service aircraft fleet and complying with all necessary reporting, acquisition and disposal of aircraft and equipment. The fleet manager will collaborate with the Contracting Officer during procurement process and coordinate with Regional UAS Specialist on acquisition using Form FS-5700-13B Additional responsibilities include maintaining the UAS Working Capital Fund (WCF) and fleet budget tracking, and assisting with the testing and evaluation of future aircraft and technologies.

Regional UAS Specialist

Regions may identify a collateral duty position or establish a position responsible for managing the region's UAS program. Regional UAS Specialist collaborate with the National UAS Program Manager to coordinate Regional-level UAS operations plans, safety plans, and standardized mission notification and approval procedures. Additionally, Regional UAS Specialist represents the Forest Service on Agency and Interagency committees and subcommittees Regional UAS Specialist are responsible for managing and reporting use of the Forest Service's blanket COA authorizing UAS operations beyond Part 107 authority and coordinating requests for emergency COAs and special-use waivers or COAs with the National UAS Program Manager. Regional UAS Specialist tracks accountable UAS property, facilitate all training for pilots, trainees and future students. They complete Form FS-5700-13B for the acquisition of platforms. Regional UAS Specialist will communicate with all FS staff areas within their assigned geographic boundary for their UAS needs. Additionally, Regional UAS Specialist plans and conducts functional site visits and quality assurance reviews in coordination with the National UAS Program Manager.

UAS Inspector Pilot

UAS Inspector Pilots will be designated as UAS Inspector Pilot by the National UAS Program Manager in agreement with the Branch Chief Pilot Standardization, or designee. UAS Inspector Pilots will adhere to a standardized interagency approval process, in agreement with DOI/OAS. UAS Inspector Pilots have the responsibility to:

1. Provide leadership and oversight to assist in the development and implementation of the inspector pilot training program.
2. Perform contract pilot inspections.
3. In coordination with the Contracting Officer, approve or suspend authorization of vendor pilots to operate UAS under agency/interagency contracts and agreements.
4. Administer vendor aircrew evaluations for the purpose of authorizing agency or interagency special use missions.
5. Provide evaluation and technical oversight of vendor pilots, aircraft, and equipment used in agency or interagency missions.
6. Serve as an agency aviation subject matter expert on aviation boards, incident and accident investigations, and contract compliance inspections, learning reviews and Aviation Safety and Technical Assistance Teams (ASTAT), as needed.
7. Conduct a QA review of agency pilot, flight crew, and aircrew training records.
8. Perform pilot evaluations/inspections, briefings, and interagency pilot approvals, based on the applicable aircraft contract or cooperator agreements.
9. Communicate with the National UAS Program Manager if pilot deficiencies exist, which necessitates the removal of a pilot's card or entry into trainee status.

Remote Pilot In Command (PIC)

A person who holds a remote pilot certificate with a sUAS (small UAS) rating and has the final authority and responsibility for the operation and safety of a sUAS operation. The PIC has the following responsibilities:

1. Train and brief all Visual Observers, mission crewmembers and ordering unit prior to mission,
2. Possess an FAA Remote Pilot Certificate prior to attending A-450 UAS Training course or approved equivalent,
3. Maintain their Remote Pilot certificate as required by FAA, including bi-annual recertification for a Part 107 UAS Pilot License,

4. Perform a preflight inspection of the UAS in accordance with the manufacturer's recommendations, Agency best practices and ensure the aircraft is in an airworthy condition,
5. Coordinate with Forest/Zone Aviation Officers in advance of missions to identify, assess and de-conflict any potential airspace issues,
6. Fly in accordance with the manufacturer's specifications and established FS policy/training standards. Proposed deviations from established operational procedures (checklists, etc.), which may affect the safety of flight, shall be discussed with UAS Program Managers prior to the deployment of such operations in order to minimize programmatic/operational risk.
7. If a procedure is required for a specific mission, and was not instructed during an approved agency training, then it is the responsibility of the PIC to contact their Forest/Zone Aviation Officer to vet the process. Examples of operations or procedures not taught in an approved agency training include, but are not limited to, launch and recovery methods other than those taught or described during approved training or operations outside of manufacturers recommendations, and/or any deviations not instructed during approved agency training. FS Remote Pilots must contact the Forest/Zone Aviation Officer or Regional UAS Specialist who will work with the National UAS Program Manager for deviation approval.

Visual Observer (VO)

A person acting as a UAS crewmember who will not be required to possess or obtain an Interagency Remote Pilot Card. All Forest Service Remote Pilots conducting operations under 14 CFR Part 107 must maintain visual contact with the UAS or utilize a VO. Use of VOs must comply with the provisions of Part 107.33. If operating under COA, MOA or ECOA the VO requirement of those authorizations must be complied with. Visual Observers are required to:

1. Obtain a briefing from the PIC
2. Have a clear view of the area of operation and the unmanned aircraft.
3. Be in communication with the Remote Pilot at all times either within speaking distance or with a portable radio/cell phone equipped for immediate communication.
4. Keep the Remote Pilot advised of any possible collision hazards such as power lines, birds, other aircraft, terrain, and hazardous weather conditions.
5. VO's may not act as a Remote Pilot unless they possess a valid FAA Remote Pilot certificate and a current Interagency UAS Pilot qualification card.

Chapter 3: UAS Qualifications and Training

Introduction

The intent of the Forest Service's UAS Program is to maintain training and qualification for interagency commonality, thereby enabling interagency training sessions, pilot inspection and pilot approvals (carding). The Forest Service recognizes and adopts training and qualification standards outlined in *Interagency Aviation Training* (IAT.gov), *A-450 Basic Remote Pilot*. Additional training and qualification standards may apply for specialized missions and/or more complex payloads or missions.

UAS Pilot Qualifications

FS employees and contractors/cooperators/partners operating UAS under Forest Service operational control must possess a valid, current FAA Remote Pilot license and a valid, current Interagency Remote Pilot card with an endorsement for the UAS to be flown (OAS-30u). The Forest Service recognizes there are no current policy

for pilot carding. The Forest Service will adopt the OAS pilot carding procedures in the interim. The only exception is during initial training, for currency/proficiency flights.

Instructor

This term holds different meanings when it comes to UAS. Defining this is critical and the usage of these terms must stay consistent throughout governing policy/standards in order to maintain a clear guidance.

Classroom Instructor: Individual that is current and qualified within IAT as an aviation lead instructor. A coach/mentor or unit instructor is someone that may help the program within the training program to learn and prove competency.

Instructor Pilot: Pilots carded on specific platforms that have been vetted as competent through the National UAS Program Staff are qualified to instruct and certify other remote pilots.

UAS Pilot Training and Currency

Training/Certification Process

Prior to attending interagency UAS training, remote pilots must meet agency specific requirements. The following workflow depicts the typical process (Fig. 1).

Remote Pilot Qualification Process

Figure 1. Remote Pilot Qualification Process

Initial UAS Remote Pilot Training

FS employees follow a competitive selection process to become qualified remote pilots. The process for FS sUAS pilot candidate application, review and selection include the following considerations:

1. Approval and concurrence for the application is required from the employee's direct supervisor and the Regional UAS Specialist and/or Regional Aviation Officer (RAO).
2. The RAO responsible for approving an employee's application is determined by the region where the employee's physical duty station is, regardless of the employee's organizational alignment. For instance, a research employee who is physically located in California, but is part of Washington Office staff, will be reviewed by the Region 5 UAS Coordinator and Region 5 RAO.
3. The application must demonstrate that the applicant's successful Remote Pilot carding will facilitate UAS work that provides benefit to all FS missions within the Forest, Region and Nationally, regardless of Staff area.
4. All nominated UAS pilots will be reviewed by the National UAS Program Manager (in coordination with the responsible Regional UAS Specialist and/or RAO) before training is authorized.

5. All selected candidates must be FAA Part 107 certified or have a sUAS rating on their FAA Part 61 certificate. Associated cost with this certification will not be funded by the WO. Individual Regions may implement their own reimbursement or payment procedures. No retroactive reimbursement will be available.
6. Candidates should meet the training requirements for FS Remote Pilot on the IAT webpage minus A-450, prior to attending A-450. Some required IAT webinars may not be available prior to A-450 training selection. UAS pilots must attend all IAT training requirements within 6 months of A-450 selection.
7. Cooperator and/or AD candidates will meet the same requirements as Agency pilots, and their application's will be approved or denied by the Regional Aviation Officer and National UAS Program Manager. Refer to Cooperator UAS Procedures Chapter 6.
8. UAS pilot's aviation supervisor must complete A-314 (Aviation Program Overview for Forest Service Agency Administrators). A-314 is a reoccurring course due every 3 years.
9. The National UAS Program Manager will coordinate enrollment in A-450 and specialized training courses with the remote pilot, Forest/Zone Aviation Office and/or Regional UAS Specialist. All FS UAS personnel must pass an initial evaluation administered by a UAS Pilot Inspector. In the situation of a candidate not meeting the evaluation standards, but who may become proficient with additional training and practice under the supervision of a qualified FS or DOI remote pilot, the Pilot Inspector, with approval from the National UAS Program Manager, may place the student into "Trainee Status" (noting on the candidate's Interagency Remote Pilot Card the requirement to be recommended for another flight evaluation).

Remote Pilot Proficiency, Currency and Refresher Training

Flight proficiency

Prior to flying a mission, a remote pilot must have completed three takeoffs (launch) and landings (recovery) with the UAS they are approved to operate within the preceding 90 days. If the remote pilot does not have 3 takeoffs and landings within 90 days prior to a mission, the Remote Pilot must regain proficiency by performing the flight maneuvers and review emergency procedures for the specific make and model, during a proficiency flight prior to an operational mission or conduct their mission flight under the observation of a current UAS pilot or letter of approval from the National UAS Program Manager. UAS Pilots are encouraged to fly more often than the minimum proficiency requirements.

Flight Currency

Remote Pilots are required to fly each of the aircraft for which they are carded at least once every 12 months or the interval specified on their Interagency Remote Pilot Card. Remote Pilots failing to meet this requirement shall fly under the supervision of a carded and current Remote Pilot and perform the flight maneuvers and emergency procedures for that aircraft.

Forest Service UAS Refresher Training

Remote Pilots must complete UAS refresher training (A-452R) or approved equivalent every 24 months following the issuance of their Interagency Remote Pilot Card. Current Remote Pilots participating in either A-450 Small Unmanned Aircraft System (sUAS) Basic Remote Pilot Course or A-452R Small Unmanned Aircraft System (sUAS) Refresher Training, as a student or instructor, will receive credit for refresher training (if entered appropriately in IAT). This training can be completed in advance or within 30-days after the date of expiration on the Interagency Remote Pilot Card and shall be documented on the iat.gov website. For UAS pilots exceeding more than 30 days past the end of the expiration indicated on their Interagency Remote Pilot Card they must

complete a flight evaluation provided by an approved UAS pilot inspector and attend an A-452R refresher course.

Required Refresher Training Elements

1. Program and policy updates
2. Flight exercise
3. Mishaps, SAFECOMs and trends
4. Airspace authorization
5. Risk management and crew resource management review
6. Lessons learned
7. Aircraft/Sensor updates
8. Identified special emphasis items
9. RT 9059 F (CRM 7 skills refresher (every 3 years))
10. FAA UAS Pilot recurrent knowledge test (every 24 months)

Recommended Refresher Training Elements

1. Industry trends
2. Emerging technology discussion
3. Hardware/software/apps
4. Lessons learned/case studies
5. Training review/curriculum updates

Additional UAS Training

In order to utilize additional ground control station (GCS) software or applications to operate UAS, Forest Service Remote Pilots must fly with a designated agency approved pilot with experience in the specific software/application and complete the recommended training elements. The GCS shall be documented on the *Forest Service Flight Use Report Form*. The Forest Service will maintain and post a list of approved GCS software/applications for each approved UAS. Remote Pilots wishing to utilize unapproved GCS software/applications shall coordinate with their respective Regional UAS specialist to the National UAS Program Manager or Designee to facilitate approval. The following is additional UAS training available to Remote Pilots:

1. Forest Service Mapping Workshop
2. A-454 Small UAS Operator Add-On Course
3. A-452R Basic Remote Pilot Refresher
4. S-373 UAS Incident Operations
5. RT-373 UAS Incident Operations Refresher

An Instructor Pilot is required to evaluate and recommend/approve the *Interagency Remote Pilot Card* endorsement for the following types of specialized missions:

1. Extended visual line of sight
2. Beyond visual line of sight
3. Cargo Delivery
4. Aerial Ignition

Visual Observer (VO) Training

Certain certificates of authorization/waiver (COAs) may require that observers have completed sufficient training and/or briefings to communicate to the pilot any instructions required to remain clear of conflicting traffic. UAS Remote Pilots shall ensure that VO training/briefing requirements have been met. Refer to 14 CFR part 107 or COA/ECOA and/or agency approved best practices, as applicable.

UAS Training Roles--Instructor Qualifications

All UAS instructors will meet FSH 5709.16 Chapter 60 requirements. UAS lead instructors and instructor candidates must contact the Forest Service UAS Program Manager or designee for specific guidance. Candidates must meet the training requirements for IAT instructor and/or NWCG instructor. Lead Instructors wanting Unit Aviation Training Administrator (UATA) privileges must be nominated by the National UAS Program Manager. Qualifications for the following instructor roles can be found in the IAT Library and the NWCG Standards for Course Delivery, PMS 901-1:

1. Forest Service Remote Pilots wanting to become Instructors or Instructor Pilots must contact the National UAS Program Manager or designee for specific guidance.
2. A-450 Coach/Mentor (1st step in becoming an instructor)
3. A-450 Instructor (2nd step)
4. A-450 Lead Instructor (3rd step)
5. A-454 Add-on Instructor Pilot
6. A-452R Instructor

Chapter 4: Operational Planning, Coordination, and Procedures

Introduction

Operational planning requirements vary depending on the nature of and authority under which the mission will be conducted. Prior notification and early involvement of local aviation management, Regional Aviation staff and National UAS Program Manager can help streamline the planning process and reduce the time required. This may change in the future when additional Forest Service UAS Aviation staff are trained and in place. (Appendix C: Mission Planning Considerations)

UAS Operations General Provisions

A Project Aviation Safety Plan (PASP) will be developed for all resource based UAS missions. For UAS missions on a recurring or routine basis, the required PASP can be rolled into a station/unit aviation plan that shall be reviewed by the FS UAS Regional Specialist or designee annually. PASP and MASP (Mission Aviation Safety Plan) will be interchangeable until all FS planning products are in MASP format.

UAS Remote Pilot and Crew - Flight Time and Duty Day

Remote Pilots are limited to 8 hours of flight time during any duty day. For non-incident UAS operations, Forest Service UAS flight crewmembers are limited to a 16-hour duty day and must have at least 2 days off in any 14-day period. For UAS operations in support of incident management efforts, UAS crewmembers shall comply with the Interagency Business Management Handbook and/or Agency policy for personnel duty limitations.

Operational Coordination:

1. Forests and Regions are responsible for coordinating with adjacent jurisdictional landowners for overlapping Forest Service UAS operations.
2. For operations taking off and landing on Federal, State, Tribal and municipal lands, Forests and Regions will receive authorization from the appropriate authority prior to operations. This shall include anticipated periods of operation, purpose of the flights, and contact information for the responsible unit when/should questions or issues arise.
3. For flights over private land, Forest Service UAS pilots shall make every effort to notify landowners of the anticipated periods of operation, purpose of the flights, and contact information for the responsible unit if/should questions or issues arise.
4. For flights under the Forest Service/FAA blanket COA may require landowner notification. Refer to provisions of the COA.
5. Project areas will be evaluated in advance using best available data/information and pilots conduct a site survey when possible prior to conducting UAS missions to assess topography and vegetation.
6. Flights will be planned to avoid sustained/repeated overflight of heavily trafficked roads or highways, but may briefly cross over active roads if necessary for safety reasons and to accomplish the mission. Such actions will be noted on the risk assessment.
7. Forest Service pilots should always anticipate, consider and mitigate issues due to mission site conditions (i.e. daily wind conditions, variable terrain, tree heights, density altitude, etc.)
8. Cooperator/Affiliate Missions (Forest Service or DOI Operational Control): Requests for approval of cooperator/affiliate UAS under the operational control of Forest Service must follow the process outlined in FSH 5709.16 Chapter 46, and NFES 2724 (Interagency Standards for Fire and Aviation Operations). UAS Cooperator approval letters will be issued by the National UAS Program Manager.

Flight by Notification Criteria

The intent of Flight by Notification is to provide an option for a similar mission profile in a different location without an additional PASP review and approval process. A flight by notification will follow local approval processes according to complexity and risk, for UAS missions that are considered reoccurring or routine. Flight by Notification set up should go through the Regional Aviation Officer.

1. A minimum of 24 hours' notice is recommended prior to mission. Must have a blanket PASP approved that declares the Flight by Notification is an option.
2. If the mission can be achieved with minimal additional hazards that are not stated in the parent PASP. Additional hazards will be documented, mitigated and briefed prior to mission.
3. Units using flight by notification shall develop an appropriate form or communication system that will be reviewed by the Dispatch Center Manager and Forest/Zone Aviation Officer and District Ranger where flights are occurring and approved by the Regional UAS Specialist and Regional Aviation Officer.
4. The Agency is working on being able to provide a technical solution to alleviate the Flight by Notification option.

Notice to Airman (NOTAM)

1. Flights conducted under 14 CFR Part 107 do not require a NOTAM.
2. Flights conducted under FS/FAA COAs will adhere to the terms of the COAs for filing of NOTAMs (may be filed online): https://www.1800wxbrief.com/

3. Beyond Visual Line of Sight (BVLOS) must be conducted with an FAA Part 91 waiver or under the terms of the FS/FAA COA for flights within a Temporary Flight Restriction (TFR). If flying under a COA, follow the provisions.
4. Flights within a TFR must be conducted under the direction of the official in charge of the on-scene activity.
5. Flights above 400 feet AGL must be conducted with an FAA Part 107 waiver, under the FS/FAA MOA or blanket COA, or with permission from the controlling agency if flying in restricted airspace.

Certificate of Waiver or Authorization (COA)

For public agencies such as the Forest Service the FAA issues a Certificate of Waiver or Authorization (COA) that permits public agencies and organizations to operate a particular aircraft, for a particular purpose, in a particular area. Forest Service UAS are considered public use aircraft. For UAS operating as public use aircraft operation, the authority is the COA. These COA types include:

- Blanket COA
- Emergency COA - (Special Government Interest Waiver (SGI))

The COA allows an operator to use a defined block of airspace and includes special safety provisions unique to the proposed operation. COAs usually are issued for a specific period— up to two years in many cases. In order to obtain a COA, an operator must demonstrate that the unmanned aircraft (UA) is airworthy and would not be a threat to the public or to other aircraft. The COAs enable the Forest Service to fly UAS in a certain area for multiple flights without needing FAA approval for each individual flight within that area. Therefore, once the Forest Service obtains a COA, it can operate a UAS multiple times within a certain geographic area. The FAA works with agencies to develop specific conditions to ensure the safety of operations, such as limiting use to low population areas. For Federal fires, the Forest Service or DOI would be the lead agency for obtaining an ECOA or SGI depending on the jurisdiction of the fire.

All uses of the blanket COA issued to the FS must be reported to the Regional UAS Coordinator and to the National UAS Program Manager by no later than the fifth day of the calendar month after use, for reporting to the FAA. (For example, if a mission under FS blanket COA authority was flown in May, use must be reported by June 5th). Although FAA Part 107 has provisions that allow public aircraft operations without a COA (such as Hobbyist or Recreational), Forest Service policy requires that a COA be in place for all operations. The National UAS Program Manager will be the point of contact for all COA requests for the FS.

Federal Operational Control of UAS

Operational Control: With respect to a flight, the exercise of authority over initiating, conducting, or terminating a flight.

Natural Resource, Non-Fire and Proficiency Missions

Forest Service UAS Pilots may fly in a different geographic area utilizing the local units' PASP if approved for multi-pilot use, this includes Interagency PASPs. Forest Service UAS Pilots may fly other Federal agencies approved aircraft if carded on specific make and model.

Natural Resource project flights can be conducted under the provisions of this supplement if:

1. The aircraft being used is carded.

2. The pilot is a carded Interagency UAS Pilot.
3. The airspace is authorized.
4. Provisions are followed in a signed and approved Project Aviation Safety Plan.
5. Project is defined as a flight by PASP or PASP with flight by notification. (*MASP (Mission Aviation Safety Plan) and PASP are interchangeable if acronym changes)
6. Flight by Notification form has been completed (if applicable)

Wildland Fire Missions

The Forest Service adopts the NWCG Standards for Fire Unmanned Aircraft Systems Operations (PMS 515) in its entirety.

There are four Interagency Incident positions, Interagency Fire Remote Pilot (UASP), UAS Manager (UASM), Module Leader (UASL), and Data Specialist (UASD). These four positions must meet training and currency requirements as documented in the National Wildland Fire Qualification System guide (PMS 310-1) and the Field Managers Course Guide (PMS-901-1). These four positions shall operate within the provisions of the Interagency Fire Unmanned Aircraft Systems Guide (PMS-515) and applicable agency and FAA policies.

Emergency Support Function (ESF)/Search and Rescue (S&R)/All-Hazard Response Missions

Although Emergency Support Function, Search and Rescue and All-Hazard Response are identified in FSH 5709.16 Chapter 30 the role of the UAS Program and operational training has not yet evolved to meet these missions. Close coordination with the Forest/Zone Aviation Officer, Regional UAS Coordinator, and the National UAS Program Manager will occur on a case-by-case basis with select UAS Remote Pilots to develop best practices within these mission areas. Utilization of UAS will be at a National level until best practices, policy, training, and operational guides are updated with appropriate level of oversight and management.

Law Enforcement Missions

The LEI personnel shall follow the FSH 5309.11, Chapter 50, FSM 5700, and FSH 5709.16 for all aviation operations. Local LEI personnel that are required to utilize aircraft to support aviation operations should discuss all aspects of the operation with the Regional UAS Coordinator and National UAS Program Manager well in advance of operations.

Law Enforcement UAS Operations

The local LEI (Pilot in Command) or LEI supervisory personnel that are going to utilize aircraft to support aviation operations should discuss all aspects of the operation with the Regional UAS Coordinator and National UAS Program Manager well in advance of operations, unless exigent circumstances exist; the Regional UAS Specialist and National UAS Program Manager will be briefed as soon as practical after the operation(s).

This includes the use of aviation resources for Flight Service Contracts. The responsible individual will prepare a PASP and submit the plan for review and approval. All LEI operations will have a PASP prior to commencing operations. Line officers shall be informed of law enforcement and investigator non-covert aviation activities within their area of responsibility. Aviation operations involving Forest Service law enforcement personnel must be communicated to the responsible Forest Service dispatch service, where available. For Unmanned Aircraft System Operations refer to FSM 5713.7 and FSH 5709.16

Occasionally there are “special” law enforcement aviation missions that are not covered in a standard PASP. If any proposed flights are not covered by an appropriately established aviation plan, then a modified PASP will be prepared. This includes the use of aviation resources for Flight Service Contracts. The responsible LEI personnel

will prepare a PASP and submit the plan for review and approval if exigent circumstances do not exist. In most cases, LEI operations will have a PASP prior to commencing operations. Line officers should be informed of LEI non-covert aviation activities within their area of responsibility.

Non-emergency Law Enforcement Operations

All Forest Service law enforcement operations will utilize carded and approved UAS aircraft and pilots. Law enforcement operations on or over National Forest System lands will notify the local Supervisory Special Agent or Supervisory Law Enforcement Officer prior to the mission(s) taking place. All non-emergency operations will require a PASP.

Emergency Law Enforcement Operations

These situations usually involve search and rescue, or medical evacuation operations being conducted by local authorities using public agency, military, commercial, or private aircraft.

Undercover, covert law enforcement situations exist where an agency employee may become engaged in an activity while operating within the normal scope of employment, law enforcement operations will utilize carded and approved UAS aircraft and pilots. The following policies must govern emergency situations:

Follow all Forest Service internal law enforcement policies and procedures, including:

1. Operations Plan
2. Aircraft Card
3. Flight Crew Card
4. Airspace Authorization

Flight Following During Emergency Law Enforcement Operations

Adhere to the flight following check-in procedures (FSH 5709.16, sec. 33) except when conducting covert operations where the need for secure communications is essential. In these situations, utilize the following procedures:

1. Grid map reference check-ins. The flight plan must be inserted into a sealed envelope and must be opened by the dispatcher only in the event of an aircraft emergency or failure to check-in with normal specified timeframes. Flight check-ins are performed utilizing coded grid references rather than geographical location descriptors.
2. Flight following through another agency. Flight following may be performed by another agency (for example, Department of Defense, National Guard facility or Sheriff's office).
3. Satellite flight following. Flight following via an automated reporting satellite system is highly recommended, since no voice communication is necessary.

Wilderness and Wild & Scenic River Missions

Use is prohibited if operator or device are on the ground within congressionally designated Wilderness. Flying over wilderness is otherwise discouraged (FSM 2326.03 (3) and not recommended. For use in Wilderness Study Areas, Wild and Scenic River corridors and recommended wilderness areas please consult with local Regional or Forest wilderness and Wild and Scenic River Agency Administrators for local restrictions.

Administrative use requests require a minimum requirements analysis because UAS are considered to be an aircraft under FAA definitions and therefore a prohibited use in Wilderness. Additionally, UAS are considered both “motorized equipment” one of the prohibited uses in section 4 (c) of the Wilderness Act. Under certain

conditions when the use may be considered the minimum requirement to administer the area for wilderness purposes, authorization may be granted after completing a Minimum Requirement Analysis using the Minimum Requirements Decision Guide (MRDG). In most circumstances, the Regional Forester must approve motorized use in Wilderness unless delegated to the Forest Supervisor in writing.

Non-Operational Control of UAS

Hobbyists and Recreationalists

Individuals and organizations that fly UAS for hobby or recreational purposes are encouraged to visit the Forest Service UAS responsible use webpage for further guidance on National Forest lands.

There is federal legislation (law) that describes how, when, and where individuals can fly drones for recreational purposes. All persons are considered a recreational UAS user if they fly the aircraft (Drone) for fun. It is important to know when and where persons are allowed to fly UAS and how those aircraft must be registered. Recreational Flyers & Modeler Community-Based Organizations Link provided with the most up to date, to assist with guidance when communicating with hobbyists.

Recreational use of UAS in Wilderness is prohibited. UAS are considered to be aircraft according to the FAA and both "motorized equipment" and "mechanical transport" under Section 4(c) of the Wilderness Act. As such they cannot take off from, land in, or be operated from congressionally designated Wilderness Areas (see also Aeronautical Information Manual 7-4-6. Flights over Charted U.S. Wildlife Refuges, Parks, and Forest Service Areas).

UAS incursion reporting in wilderness

Attempt to identify drone type and potential launch site. Law Enforcement shall be contacted citing 36 CFR 261.18(a) and 36 CFR 261.18(c) which is illegal UAS use in wildernesses.

Cooperator UAS Use Procedures

All cooperator flight operations on federal lands including federal lands protected by state agencies shall be conducted in accordance with Forest Service policy, applicable 14 CFRs, and aircraft flight manual/pilot operating handbooks.

- Aircraft shall be approved per FSH 5709.16 Ch. 40.
- Pilots shall be approved per FSH 5709.16 Ch. 50.
- Cooperator approval letters issued.

University UAS Use

When a university (or other educational institution) proposes to collaborate with the agency on a UAS project over NFS lands:

1. Ensure there is an agreement in place between the University (or other educational institution) and the Forest.
2. There must be a COA in place or the project must meet Part 107 requirements (remote pilot certificate and aircraft registration).
3. If Universities are working in collaboration or in partnership with the Forest Service for government benefit, then no special use authorization is needed.
4. If no collaboration or partnership exists between the University and the Forest Service, then a special use authorization will be required.

Commercial UAS Use

Commercial use of NFS lands requires a special use authorization (36 CFR 251 Subpart B). For commercial UAS operators conducting their own business not for the Forest Service, but on NFS lands, there is no UAS specific special use authorization (SUA). UAS are tools or equipment of the trade just like canoes, horses, or dozers, and would be authorized under permits such as outfitter/guide or utility line and incorporated into an Operations and Maintenance (O&M) Plan. See FSH 2709.11 CHP 10 - Application and Authorization Processing, Exhibit 02 Appropriate Use Code Authority for uses that generally require a permit. The operator of a UAS for business on NFS lands will need to have a special use permit for the activity that requires the use of a UAS. Some examples include a utility company inspecting their transmission lines and towers, a ski lift operator inspecting their ski lift, some commercial filming operations may require a special use permit if they are filming in a location not accessible by the general public and requires the use of props and actors. News media filming on going news events or background video do not require a special use permit Reference (FSM 2700) and (FSM 2300) for wider discussions on special use.

*No commercial use of UAS in the Wilderness will be authorized. See Section 4 (c) in the Wilderness Act.

These operations are permitted with the following authorizations:

- The operator has a current FAA Part 107 remote pilot certificate and the aircraft is registered.
- The operator obtains a Special Use Authorization (SUA) approved by the Line Officer, any third-party pilot or aircraft will need to be identified and approved under the SUA
- The Forest/Zone Aviation Officer, Regional UAS Specialist should be notified of all commercial UAS operations or end product contracts which utilize UAS.
- The agency is not legally responsible for overnight security of contract UAS at an airport or other secured area. At other sites, however, it may be prudent for the agency to provide security.

UAS Use Reporting

Fleet aircraft Reporting

1. The remote pilot shall record UAS flight time using the Forest Service flight reporting link.
    - FS operating a FS UAS use, Forest Service flight Reporting
    - FS operating DOI UAS use, OAS-2U and Forest Service Reporting
2. Updates must be submitted monthly or at the conclusion of the project, whichever occurs first.
3. Remote Pilots must record malfunctions, damage or repairs to UAS, component replacement on the UAS flight report form. Repair of damage beyond normal wear shall be coordinated with the FS UAS Fleet Manager.

Flight Service Contract Reporting

Flight use reporting will follow the reporting process outlined in the contract and in accordance of agency policy.

UAS and FAIRS Reporting

UAS program will work with appropriate FS Aviation Management Specialists to ensure that quarterly and/or annual data is provided to meet Federal Aviation Interactive Reporting System (FAIRS) reporting requirements.

UAS Mishap Reporting

Unmanned Aircraft Accidents & Incidents (NTSB or BC-ASMS Determination)

If the USDA-FS retained operational control of a UAS at the time of a mishap, at least one of the following criteria represent trigger(s) for a mandatory notification to the BC-ASMS and coordination with the USDA-FS UAS Program Lead:

- Operations over people
- Death or Loss of Consciousness (LOC)*
- 500.00+ collateral damage (non-UAV)*
- 300 pound UAV or greater*

NTSB/FAA Reportable

1. UAS Mishap Investigation Authorization (required)
2. Aviation Mishap Investigation UAS Notification (Required)
3. UAS Mishap Investigation Report (required)
4. SAFECOM (required)
5. UAS Mishap Investigation Board (optional)

Note: Any UAS mishap may be investigated at the discretion of the USDA-FS UAS Program Manager.

- Notify the Regional Aviation Safety Manager.
- SAFECOM is a tool used to identify, document, track and correct safety related issues. Submit SAFECOM reports for any conditions, acts, observations, circumstances or maintenance problems that led to, or could have led to, an aircraft mishap (https://www.safecom.gov). This includes any damage to an aircraft that renders it non-airworthy, even temporarily.

  *Interagency Aviation Mishap Response Guide and Checklist

UAS Emergency Reporting

In the event of a serious accident that any person suffers death or serious injury. It is imperative to communicate directly to the Forest/Zone Aviation Officer, Regional Aviation Safety Manager as soon as possible. National UAS Program Manager will be notified after initial notification are made.

National Travel Safety Board Definition

A UAS accident is defined by the National Travel Safety Board (NTSB) as an occurrence associated with the operation of any public or civil UAS that takes place between the time that the system is activated with the purpose of flight and the time that the system is deactivated at the conclusion of its mission, in which any person suffers death or serious injury, or the UAS has a maximum gross takeoff weight of 300 pounds or greater and sustains substantial damage. In the case of a midair collision between a manned aircraft and a UAS that weighs less than 300 pounds in which no injuries were sustained, consideration should be given to the damage incurred to the manned aircraft to determine if the criteria for substantial damage to the manned aircraft has been met.

Chapter 5: UAS Typing and Call Signs

The Forest Service has adopted NWCG standards for UAS typing and call signs utilized in emergency response activities. UAS are built in a multitude of configurations, which makes classification difficult. All UAS have varying capabilities and limitations. Utilization of the appropriate make and model is essential to ensure requested product is delivered. For example: some UAS have fixed cameras and others are on a gimbal-based system with interchangeable sensors. This section is intended to provide generic operational characteristics.

UAS Call Signs

Incident Operations

Call signs will only be provided to UAS that will be utilized on incident operations. Unmanned Aircraft System Pilots (UASP) will follow established incident communications protocols by utilizing current NWCG PMS 515 policy, as instructed in S-373 or RT-373. See Table 2.

- If a fire aircraft is supporting non-incident operation, call signs will carry over.

Non-Incident Operations

Call signs will be assigned by the National UAS Fleet Manager, to the aircraft and utilized during communications. (i.g UR4-last 2 of assigned FAA Certificate Number)

- Type of Aircraft (Unmanned – U)
- Configuration (Fixed or Rotor – (F/R) Foxtrot/Romeo **phonetic alphabet*
- Endurance Type (1-4) **see table below*
- FAA Certificate Number (Agency designated number)

Table 2. UAS Types and Statistics (Source: National Wildfire Coordinating Group-PMS 515).

Type	Configuration	Endurance	Data collection altitude (agl-feet)	Max. range (miles)	Typical Sensors*
1	Fixed-wing Rotorcraft	6-14 hours NA	3,500-8,000 NA	50 NA	EO/Mid-wave IR High quality IR
2	Fixed-wing Rotorcraft	1-6 hours NA	3,500-6,000 NA	25 NA	EO/Long-wave IR Moderate quality IR
3	Fixed-wing Rotorcraft	20-60 minutes 20-60 minutes	2,500 and below 2,000 and below	5 5	EO/IR Video and stills Moderate quality IR
4	Fixed-wing Rotorcraft	Up to 30minutes Up to 20 minutes	1,200 and below 1,200 and below	<2 <2	EO/IR Video and stills Moderate quality IR

**Sensor payloads are variable but typically include daylight (electro-optical), infrared (IR), thermal, or mapping cameras. Type 1 and 2 UAS carry multiple camera types in a gimbaled configuration.*

Operational Characteristics

Type 1 and 2

These aircraft will generally be operated by contractors and provide strategic situational awareness (SA), mapping and intelligence surveillance and reconnaissance (ISR), provide data for monitoring, measuring, assessments, and planning for natural resource management purposes.

- They typically operate above all other incident aircraft.
- Communications are maintained with the UAS crew on the assigned Victor (AM) or air-to-ground (FM) frequencies.
- All Type 1 and 2 contract aircraft will be equipped with Mode C transponders.
- Typical aircraft are the Scan Eagle, Aerosonde, or Silent Falcon.

Type 3 and 4

These aircraft are generally agency operated and perform tactical SA or mapping missions on/near the fire line or incident. Smaller scale monitoring, measuring, aerial photography for resource projects.

- Most do not carry transponders.
- Communications are maintained with the UAS crew only on assigned FM frequencies.
- None are equipped with Automated Flight Following (AFF) equipment.
- Typical aircraft are the Anafi (RW), DJI M600 and Mavic (RW) and FireFly6 (FW).

Chapter 6: Aircraft Acquisition & Maintenance

Acquisition

The National UAS Program Manager supervises the National UAS Fleet Manager who is responsible for planning, acquisitions and managing UAS fleet availability. UAS aircraft are subject to regulations governing the procurement and management of aircraft. FSM 5703.2 assigns UAS registration responsibility to the Washington Office, and FSH 5709.16 Chapter 10 directs that all aircraft acquisition, including UAS, follow a specific planning and approval process. Requests for UAS acquisitions and funding must be routed through Forest/Zone Aviation Officer or Regional UAS Specialist to the National UAS Program Manager, or delegate.

UAS Ordering Procedures

Refer to D: UAS Ordering Process for procedure table (Appendix D: UAS Ordering Process) for the current approach for Natural Resource and Wildland Fire Missions respectively. The UAS Ordering Process is subject to change and will be updated as needed.

Note: All UAS purchases will come from the National UAS Program Manager or delegated to the National UAS Fleet Manager. NO LOCAL PURCHASES or property transfers ARE AUTHORIZED

UAS acquisition will follow the same policy in FSM and FSH for aircraft. UAS may be assigned to a region for short- or long-term use. Regions or UAS custodians must maintain UAS use and maintenance logs in accordance with FSH 5709.16 Chapter 40 for all assigned UAS. All acquisitions must be submitted through the Regions using Form FS-5700-13B (example shown in Appendix B: UAS Acquisition Form (FS-5700-13B)).

Airworthiness and Maintenance

The Branch Chief Airworthiness in coordination with the Forest Service UAS Program Manager have the authority to review and approve all inspections, maintenance actions and Return-to-Service determinations for all Forest Service-owned and/or operated UAS aircraft. This authority may be delegated to a qualified inspector as determined by the Branch Chief Airworthiness in coordination Forest Service UAS Program Manager. There will be interagency collaboration of airworthiness and maintenance and sharing of best practices between interagency agencies.

Periodic Inspection

Units or assigned custodian of the UAS are responsible for coordinating required annual and periodic inspections, maintenance actions, scheduled or otherwise and Return-to-Service determinations in accordance with Forest Service Aviation policy. The Forest Service UAS Fleet Manager determines the appropriate method of inspection and re-inspection of Forest Service UAS.

Unmanned Aircraft Systems Data Record FS-5700-21b Aircraft Data Cards for small UAS, will be issued every 12 months, upon receipt of the inspection form. FS Remote Pilots assigned a small UAS must inspect the aircraft 30 days prior to the expiration of the Unmanned Aircraft Systems Data Record FS-5700-21b.

All periodic inspections for UAS shall accomplish the following tasks and annual Inspections will use Form FS-5700-19B:

1. Confirm aircraft configuration conforms to original manufacturer's design or interagency approved modification.
2. Inspect the airframe of general condition and serviceability. FS-5700-19B for a more detailed annual airframe inspection.
3. Note serial numbers of airframe and ground control station (GCS).
4. Perform preflight checklist.
5. Run systems diagnostics to confirm all tests results are normal.
6. Conduct ground engine run to confirm proper operation.
7. Check battery charger and other peripherals for proper operation.
8. Ensure the system is operating on approved firmware.
9. Confirm FS UAS are registered and marked in accordance with FAA and FS requirements.

Repairs

Unscheduled repairs may be accomplished in the field after consulting the Regional UAS Specialist, Forest/Zone Aviation Officer, and UAS Fleet Manager. For large or complex repairs, it is may be recommended to go out of service until approved repairs are made or a replacement aircraft is in place. Units are responsible for Return-to-Service determinations in accordance from direction of the National UAS Fleet Manager and/or National UAS Program Manager.

Aircraft Disposal

The National UAS Fleet Manager with collaboration with the National UAS Program Manager are responsible for following Federal property policies and procedures for UAS Aircraft Disposal.

UAS Payloads

All UAS payload configurations must be in accordance with the interagency UAS approved payloads, sensors, and GCS software/applications list. Units requiring custom payloads, or any non-approved the UAS Program will work with Missoula Technology Development Center (MTDC) and the Interagency UAS payload approval process. Some payloads may require additional training, that must be coordinated prior to acquisition to obtain the necessary training requirements. (for example: Drone Amplified Ignis payload requires additional training, carding, and certification).

UAS Property Management and Security

Each UAS will have an assigned Custodian that is responsible for management and security of the system. The Custodian will work with the designated Accountable Property Officer (APO) to ensure property management policies are followed. Ensure that UAS and payloads are used and stored in accordance with FSM 6414, Property Management Controls. Follow aviation security policies and procedures as defined in FSH 5709.16, Chapter 38.

UAS Flight Services

Contracted UAS missions require a flight services contract (FSH_5709.16 14.2). The Aviation Contracting Desk reference provides information on the process for contracting all aircraft, including UAS. All UAS Flight service contracts must be routed through the Fire & Aviation Management Incident Support Branch. The appropriate Forest/Zone Aviation Officer, Regional UAS Specialist, and the National UAS Program Manager should be coordinated with in assessing project requirement and contract specifications.

End Product Contracts

An end-product contract is intended to efficiently and effectively accomplish certain projects with no internal operational controls or specifications from the Forest Service. An end product contract requires the project be completed but does not specifically define how the project is to be accomplished. Certain aviation operations, such as aerial application of herbicides and insecticides, seed, fertilizer, prescribed burn projects, horses gathered, bridge building, and some Burned Area Emergency Rehabilitation (BAER) projects may be administered in a more efficient and less expensive manner if contracted on an end-product basis, instead of through an agency flight services contract. The end product project may be accomplished using aircraft or not. Participation by Forest Service employees in end-product contracts is limited to contract administration and quality assurance of the end product goals only. The decision to use an end-product contract removes the Forest Service from having operational control, thereby placing accountability for any aircraft accident with the operator/contractor.

Chapter 7: Privacy, Civil Rights, and Civil Liberties Protections:

Introduction

The use of UAS significantly expands USDA's ability to obtain remotely sensed and other observation data critical to fulfilling business needs. However, this use raises distinct privacy, civil rights, and civil liberties concerns that must be addressed in order to promote the responsible use of UAS and protections for individual privacy, civil rights, and civil liberties of FS staff and the public in accordance with the Constitution, Federal law, and applicable regulations and policies.

*Presidential Memorandum: Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of Unmanned Aircraft Systems

Privacy Protections

In light of the advancements in UAS technologies and diverse potential uses of UAS FS staff areas and programs , it is imperative that USDA take appropriate steps to implement UAS policies that address privacy protections, procedures, and standards to ensure compliance with the Privacy Act of 1974, USDA Privacy Act regulations, Departmental privacy policies, and other applicable laws, regulations and policies. Accordingly, FS units utilizing UAS or UAS-collected information shall meet the following privacy requirements:

1. FS staff shall only collect information using UAS, or use UAS-collected information, to the extent that such collection or use is consistent with and relevant to an authorized purpose and FS/DOI privacy policy.
2. Information collected by or on behalf of the FS using UAS that may contain personally identifiable information (PII) shall not be retained for more than 180 days unless retention of the information is determined to be necessary to an authorized mission, is maintained in a secured system of records covered by the Privacy Act, or is required to be retained for a longer period by any other applicable law or regulation.
3. The FS shall take appropriate steps to ensure that UAS-collected information that is not maintained in a system of records covered by the Privacy Act is not disseminated outside of the agency unless dissemination is required by law or fulfills an authorized purpose and complies with the agency's mission.

Civil Rights and Civil Liberties Protections

Purpose

The Departmental Regulation (DR) 3465.002 (October 7, 2019) establishes the policy for the reporting and management of Unmanned Aircraft Systems (UAS) activities and the acquisition and management of data acquired by UAS within the United States Department of Agriculture (USDA). This Departmental Regulation defines the strategic direction necessary to ensure the safeguarding of privacy, civil rights, and civil liberties of the citizens of the United States and USDA personnel when using UAS.

Scope

Departmental Regulation (3465.002) applies to all USDA Mission Areas, agencies, staff offices, programs, teams, organizations, appointees, and employees. This includes contractors and grantees operating on behalf of USDA.

To protect civil rights and civil liberties, Forest Service program managers, coordinators and pilots shall:

1. Become familiar with DR 3465.002 (Privacy, Civil Rights and Civil Liberties with Unmanned Aircraft Systems (UAS)).
2. Ensure that policies are in place to prohibit the collection, use, retention, or dissemination of data in any manner that would violate the First Amendment or in any manner that would discriminate against persons based upon their ethnicity, race, gender, national origin, religion, sexual orientation, or gender identity, in violation of law.
3. Ensure that UAS activities are performed in a manner consistent with the Constitution and applicable laws, Executive Orders, and other Presidential directives.
4. Ensure that adequate procedures are in place to receive, investigate, and address, as appropriate, privacy, civil rights, and civil liberties complaints.

Accountability

To provide for effective accountability, the FS, in conjunction with the Office of the Chief Information Officer and the Office of Civil Rights, will provide collaborative oversight of the FS UAS program within their respective areas of expertise and responsibility. FS programs employing UAS or UAS-collected information shall comply with Departmental oversight activities and take additional appropriate steps to ensure effective oversight and accountability for their respective UAS programs. Accordingly, bureaus and offices shall ensure:

1. Oversight procedures are implemented for UAS use, including audits or assessments, in compliance with Departmental policies and regulations.
2. FS personnel and contractors comply with UAS program training requirements, rules of behavior, and procedures for reporting suspected cases of misuse or abuse of UAS technologies.
3. Policies and procedures are implemented that provide meaningful oversight of individuals who have access to sensitive information (including any PII) collected using UAS consistent with applicable Federal laws, regulations, and policies, as well as Departmental policy guidance.
4. Any data-sharing agreements or policies, data use policies, and records management policies applicable to UAS conform to applicable laws, regulations, and policies.
5. Policies and procedures are implemented to authorize the use of UAS in response to a request for UAS assistance in support of Federal, State, local, tribal, or territorial government operations. Any authorized use, letter of authorization, or memorandum of understanding must include the requirements of this policy and appropriate safeguards to protect privacy, civil rights, and civil liberties.
6. State, local, tribal, and territorial government recipients of Federal grant funding for the purchase or use of UAS for their own operations have in place policies and procedures to safeguard individuals' privacy, civil rights, and civil liberties prior to expending such funds.

Transparency

The FS UAS program will complete the following activities to promote transparency about UAS activities within the NAS, while not revealing information that could reasonably be expected to compromise law enforcement or national security:

1. Provide notice to the public regarding where FS's UAS are authorized to operate in the NAS.
2. Keep the public informed about the FS UAS program as well as changes that would significantly affect privacy, civil rights, or civil liberties.
3. Make available to the public, on an annual basis, a general summary of FS UAS operations during the previous fiscal year, to include a brief description of types or categories of missions flown, and the

number of times the agency provided assistance to other agencies, or to State, local, tribal, or territorial governments.

Data and Information (IT) Management

Current regulatory guidance informs the management of IT assets and the governance of data collected. Contractors will not retain data derived from any UAS missions. As our technical infrastructure grows to support full integration of UAS, revisions and additional protocols will be introduced. This includes new or revised policies, regulations, processes, and procedures. Special consideration is being given to address privacy concerns and the practical management of personal and sensitive information gathered through UAS operations. Aviation regulations governing airspace, certifications, acquisition, reporting and tracking will be adhered to when collecting data. UAS pilots are trained to a standard to collect, process, and disseminate data gathered by a UAS.

The Forest Service will not purchase, lease or contract for any UAS platform where the data is not secure and can be controlled by the agency. Examples of data security include telemetry data of the aircraft, control link between pilot and aircraft, imagery captured during flight and raw data not included in the final product. Coordination with the CIO will occur by the National UAS Program Manager and the UASAG to ensure appropriate data security and data regulations are met.

Chapter 8: Safety and Operational Risk Management

Safety is the key consideration for all aspects of Forest Service Aviation & UAS operations. A safe UAS operation depends on the accurate risk assessment and informed decision-making. Any team member is encouraged to speak up if they believe an unsafe act is about to occur.

Personal Protective Equipment

All UAS operations will utilize the Forest Service Health and Safety Code Handbook 6709.11.

Safety Awareness

Safety awareness is a mental attitude fostered by proper management and supervisory procedures. FS management must be a partner in aviation safety to ensure that the standards and procedures established are understood and adhered to. This means that where operational decisions must be made, they are made prudently, with safety given priority over mission accomplishment. This requires individuals to know how to do a job or mission properly, applicable FS policies, approved operating procedures, and how to follow them consistently. With a good safety awareness attitude and well-trained individuals, most aviation accidents can be prevented.

Safety Policy

FSH 5709.16 Chapter 20 establishes a policy to develop a safety culture that incorporates the four pillars of SMS (Promotion, Assurance, Risk Management, and Policy) that consistently strives to prevent aviation accidents. This policy requires all employees involved in FS aviation activities to be active participants in safety management. Aviation managers are committed to supporting the Agency in developing, implementing and continuously improving the aviation program.

The FS UAS program is committed to implementing a fully functional Aviation Safety Management System. In many ways, UAS operations share the same characteristics as manned aviation. Some aspects require special safety attention due to their differences from manned aviation.

The FS UAS program will continually review and update this safety policy. In addition, employees utilizing UAS are expected to base risk management actions off this policy, supplement and modify as appropriate, and report these changes to the FS UAS program.

Safety Planning

The FS UAS program is managed in accordance with an approved Programmatic Risk Assessment. Employees should familiarize themselves with this, since it forms the foundation of all UAS operations. A-450 and prerequisite Interagency Aviation Training (IAT) courses include the most current operational best practices.

FS UAS operations must be planned and conducted by employees proficient in the aspects of aviation safety that are built into the Forest Service's UAS training and qualification system. It is critical that operational planning and safety planning are performed together, with full attention to the fact that any change in one affects the other.

A key aspect of the Forest Service's SMS is its commitment to continuing improvement. In order to realize this commitment, the FS practices and promotes a just, learning, reporting culture. It is natural that even the best planning is usually met by unforeseen circumstances. The organization becomes safer and more effective when employees who encounter these unforeseen circumstances share the information. The primary method of reporting and managing safety-related occurrences for all aviation activities is the SAFECOM system (https://www.safecom.gov/). UAS are included in the Aircraft type selection options for both searching and reporting. All SAFECOM reports receive follow-up to ensure the appropriate corrective actions are documented and shared with all who can benefit from them.

Mishaps occurring during missions should also be reported immediately by FS UAS pilots to the Forest/Unit Aviation Officer and the Regional Aviation Safety Manager. FS UAS pilots shall also submit SAFECOM reports for such mishaps as well as incidents, hazards, maintenance issues, mechanical failures, etc. and the corrective actions taken by FS pilots and/or lessons learned for the benefit and education of the aviation community.

Safety Management Systems (SMS)

This commitment to safety will be reflected as doctrine within aviation safety management. The adoption of SMS continues the application of Forest Service Doctrine. SMS is not a safety program; rather it is a system which aligns, assesses, and organizes an organization's existing safety processes around the concept of system safety. SMS incorporates a proactive approach using hazard identification and risk management to achieve accident prevention.

- The Forest Service Aviation Safety Management System is available through your Regional Aviation Safety Manager

* Forest Service Aviation Safety Management Systems Webpage.

UAS Operational Risk Management

Operational Risk Management (ORM) is a continuous, systematic process of identifying and controlling hazards to increase certainty of outcomes. The goal of ORM is to improve operational effectiveness by anticipating hazards and reducing the potential for loss, thereby increasing the probability of a successful operation.
The USDA Forest Service is embracing development of an ORM process to better plan for and address the inherent risks that our employees face. The ORM Guide is a part of this effort. Adoption and implementation of ORM will allow the Forest Service to enhance employee capacity to identify, evaluate, and control risks across

the full spectrum of work activities and improve the ability to accomplish objectives as safely and efficiently as possible.

1. Operational Risk Management (ORM)
2. Provide Aviation safety oversight and review through active field presence and encourage a reporting culture between management and aviation.
3. Monitor established standards and procedures and make corrections as needed.
4. Monitor accident and incident trends and implement appropriate prevention action.
5. Report accidents and incidents with potential in accordance with the local emergency response plan.
6. Conduct accident and incident investigations.
7. Provide guidance, coordination, and monitoring of safety evaluations conducted by the Regional aviation staff and Forest/Unit Aviation Officers and the National UAS Program Manager.
8. Provide assistance in aviation activities to ensure best practices and procedures are understood.
9. Promote and provide corrective action on SAFECOM reports, develop trend analysis and communicate lessons learned.
10. Review aviation accident and incident reports and follow-up on action items.

Quality Assurance (QA) and adaptive management techniques can be used to provide a structured process for achieving objectives. Forest Service efforts to date have concentrated on the development and implementation of comprehensive doctrine/policy revision, risk management processes, SMS promotion and training. All effort should be made to focus corrective action as specifically as possible.

Appendix A: Glossary and Acronyms

Glossary

Acquisition	Acquiring by contract with appropriated funds of supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated.
Agency	In the context of this document, agency refers to any Federal organization directly subsidiary to a Department. Specific organizations may use terms like Agency, Bureau or Office in their official names.
Aircrew	All personnel involved in the flight of an aircraft.
Airworthiness	The condition in which the UAS conforms to its type design (or military equivalent) and is in condition for safe operation.
Altitude	The height of a level, point or object measured in feet Above Ground Level (AGL) or above Mean Sea Level (MSL).
Class G Airspace	A geographic definition of locations where the FAA does not actively control individual aircraft movements.
Certificate of Waiver or Authorization (COA)	An FAA grant for a specific UA operation. • Blanket COA. A COA issued to the proponent allowing small UAS (sUAS) (less than 55 pounds) operations during daytime visual flight rules (VFR) conditions at specific altitudes and outside of certain distances from airports and heliports. • Standard COA. A COA issued for operation that does not fit into the parameters of the Blanket.
Civil Aircraft	Aircraft other than public aircraft.
Constitution	In the context of this document, Constitution refers to the United States Constitution, which is the supreme law of the United States.
Contract	A mutually binding legal relationship obligating the seller to furnish the supplies or services (including construction) and the buyer to pay for them. It includes all types of commitments that obligate the Government to an expenditure of appropriated funds and that, except as otherwise authorized, are in writing. In addition to bilateral instruments, contracts include (but are not limited to) awards and notices of awards; job orders or task letters issued under basic ordering agreements; letter contracts; orders, such as purchase orders, under which the contract becomes effective by written acceptance or performance; and bilateral contract modifications. Contracts do not include grants and cooperative agreements. See Federal Acquisition Regulations for further detail.
Contracting Officer	In Federal acquisition, a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings.
Contractor	Any entity or individual employed by an entity currently performing work under contract to the FS or a partner agency.
Currency	In the context of this document, currency refers to the status of qualifications that require periodic renewal. If the holder of the qualification has not completed the required periodic work, then the qualification is not current.

Digital elevation model	An array of regularly spaced elevation values referenced horizontally either to a Universal Transverse Mercator (UTM) projection or to a geographic coordinate system.
Emergency Certificate of Authorization (ECOA)	An authorization procedure for an emergency response event (i.e. police operation, natural disaster, etc.) to accommodate real-time applications. The request is made directly to the FAA Systems Operation Security, AJR-2.
Endorsement	Approval to operate specific equipment or perform certain missions, as documented on a Remote Pilot qualification card.
Executive Orders	Directives issued by the President of the United States. Executive orders have the force of law.
FAA Part	Any Federal regulation listed in Code of Federal Regulations, Title 14, Volumes 1-3, Chapter I.
Federal Management Regulation	The FMR is the successor regulation to the Federal Property Management Regulation (FPMR). It contains updated regulatory policies originally found in the FPMR. However, it does not contain FPMR material that described how to do business with the GSA.
Government Aircraft	Any aircraft owned, leased, contracted, rented or chartered, and used by a Federal Government agency.
Incident Support Branch	A US Forest Service contracting group physically located at the National Interagency Fire Center in Boise, ID and tasked with supporting National and Regional fire and aviation contracting needs.
Interagency	Of or relating to the National Wildfire Coordinating Group and its portfolio (https://www.nwcg.gov/).
Interagency Fire UAS Subcommittee	A National Wildland Fire Coordinating Group subcommittee that provides national leadership to develop and disseminate guidance on the use of Unmanned Aircraft Systems (UAS) in wildland fire management operations.
Interagency Incident Business Management Handbook	A publication of the National Wildland Fire Coordinating Group, designated PMS 902.
LAANC	LAANC is the Low Altitude Authorization and Notification Capability, a collaboration between FAA and Industry. It directly supports UAS integration into the airspace. LAANC provides: • Drone pilots with access to controlled airspace at or below 400 feet. • Air Traffic Professionals with visibility into where and when drones are operating.
Line officer	In the US Forest Service, a line officer is an employee with the authority and assigned responsibility to: 1. Plan, establish, and evaluate overall policies and programs; 2. Advise superior officers on matters of policy and program administration; 3. Supervise the formulation of, approve, and issue necessary directives, goals, policy, procedure, and standards; 4. Direct and supervise employees under their jurisdiction;

	5. Estimate workload and staffing needs of their organizations, allocate personnel and other resources, and expend funds within the limits and authorities established at higher levels; 6. Sign and execute documents within authorities granted by higher levels.
Memorandum of Agreement	In the context of this document, the FAA signed a Memorandum of Agreement with the FS June 3, 2016. This document is still effective, although the blanket COA issued by the FAA to the FS May 25, 2017 provides greater authority to operate to the FS.
Model Aircraft	An unmanned aircraft that is, 1) capable of sustained flight in the atmosphere; 2) Flown within visual line of sight of the person operating the aircraft; and 3) Flown for hobby or recreational purposes.
National Airspace System	The common network of U.S. airspace; air navigation facilities, equipment and services, airports, or landing areas; aeronautical charts, information and services; rules, regulations and procedures, technical information, manpower, and material. Included are system components shared jointly with the military.
National Technology and Development Program	An organization within the US Forest Service's Washington Office Engineering program that applies technology and equipment to improve business practices and to keep employees safe while working in a forest environment.
Orthophoto	An aerial photograph or image geometrically corrected ("orthorectified") such that the scale is uniform: the photo has the same lack of distortion as a map.
Partner	An organization participating in work with the FS.
Payload	Any equipment carried by a UAS for a specific function or mission.
Presidential directive	A written or oral instruction or declaration issued by the President of the United States.
Privacy Determination	A USDA OCIO finding resulting from a Privacy Threshold Analysis. Contact OCIO for further information.
Public Aircraft	Aircraft used in operations that are inherently governmental as defined in 49 U.S.C. § 40102, 40125, and in 14 CFR, Part 1, Definitions and Abbreviations, Section 1.1, General definitions.
Public Affairs Officer	A US Forest Service position responsible for interfacing with the public, among other duties.
Recreational Aircraft	Recreational or hobby UAS use is flying for enjoyment and not for work, business purposes, or for compensation or hire. In the FAA's Interpretation of the Special Rule for Model Aircraft, the FAA relied on the ordinary, dictionary definition of these terms. UAS use for hobby is a "pursuit outside one's regular occupation engaged in especially for relaxation." UAS use for recreation is "refreshment of strength and spirits after work; a means of refreshment or division."
Region	In the context of this document, Region refers to the administrative units in the US Forest Service directly below the Washington Office, which provide administration and support to the Forests within the geographic boundaries of the Region.
Remote Pilot	Any person who takes direct control over the flight of an unmanned aircraft. The FAA has established requirements and a certification process for remote pilots, which are primarily identified in 14 CFR Part 107.
Research	In the context of this document, Research refers to the administrative organization within the US Forest Service under direction of the Office of the Deputy Chief for

	Research and Development.
Special Government Interest	A document issued to accommodate real-time application requests that will directly support emergency and law enforcement-type operations.
Safety Management System	(SMS) is a comprehensive management system designed to manage safety elements in the workplace. It includes policy, objectives, plans, procedures, organization, responsibilities and other measures. The SMS is used in industries that manage significant safety risks, including aviation, petroleum, chemical, electricity generation and others
Special Use	All uses of National Forest System lands, improvements, and resources, except those authorized by the regulations governing sharing use of roads, grazing and livestock use; the sale and disposal of timber and special forest products, such as greens, mushrooms, and medicinal plants; and minerals are designated ‘‘special uses”. Special uses are authorized by permit, term permit, lease or easement. A special use authorization is **not** required for noncommercial recreational activities or noncommercial activities involving expression of views. (36 CFR 251.50).
Small Unmanned Aircraft System (sUAS)	A small UA less than 55 pounds and its associated elements (including communication links and the components that control the small UA that are required for the safe and efficient operation of the small UA in the NAS.
UAS Advisory Group	A US Forest Service chartered group of UAS subject matter experts tasked to ensure Forest Service UAS planning and operations enhance the ability of the agency to perform its mission more efficiently and effectively.
UAS Custodian	The person in charge of the maintenance and security of an Agency UAS.
Unmanned Aircraft System (UAS)	An unmanned aircraft and associated elements (including communication links and the components that control the unmanned aircraft) that are required for the pilot in command to operate safely and efficiently in the national airspace system.
Unmanned Aerial Vehicle (UAV)	An aircraft that can navigate without a human pilot on board; an aircraft piloted by remote control or onboard computers.
Vendor	Any entity or individual employed by an entity currently performing or expected to perform work under contract to the FS or a partner agency.
Washington Office	In the context of this document, Washington Office refers to the administrative organization within the US Forest Service that reports directly to the Deputy Chiefs.

Acronyms

3D	Three-Dimensional
AAR	Acquisition Approval Request or After Action Review
AGL	Above Ground Level
APO	Accountable Property Officer
ASTAT	Aviation Safety and Technical Assistance Team
BC	Branch Chief
BLM	Bureau of Land Management
BVLOS	Beyond Visual Line of Sight
CFR	Code of Federal Regulations (www.ecfr.gov)
CIO	Chief Information Office or Chief Information Officer

COA	Certificate of Waiver or Authorization
COW	Cell on Wings
CRM	Crew Resource Management
DOI	Department of Interior
DROTAM	Drone NOTAM
ECOA	Emergency Certificate of Waiver or Authorization
ESF	Emergency Support Function
FAA	Federal Aviation Administration (www.faa.gov)
FAO	Forest Aviation Officer
FS	United States Forest Service (synonymous with USFS)
FSH	Forest Service Handbook (maintained by the FS Office of Regulatory and Management Services - contact ORMS for current official direction)
FSM	Forest Service Manual (maintained by the FS Office of Regulatory and Management Services - contact ORMS for current official direction)
GAR	Green Amber Red
GCS	Ground Control System
GISS	Geographic Information System Specialist
IAT	Interagency Aviation Training
ICAO	International Civil Aviation Organization
IRIN	Infrared Interpreter
LAANC	Low Altitude Authorization and Notification Capability
MASP	Mission Aviation Safety Plan
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRDG	Minimum Responsibilities Decision Guide
NAS	National Airspace System
NASMP	National Aviation Safety Management Plan
NFS	National Forest System
NIFC	National Interagency Fire Center
NOTAM	Notice to Airmen
NWCG	National Wildfire Coordinating Group
OCIO	Office of the Chief Information Officer
ORM	Operational Risk Management
OAS	Office of Aviation Services
PAO	Public Aircraft Operations or Public Affairs Officer
PIC	Pilot in Command
PM	Program Manager
PMS	NWCG Publications Management System https://www.nwcg.gov/publications
QA	Quality Assurance
RAO	Regional Aviation Officer
RASM	Regional Aviation Safety Manager
SGI	Special Government Interest
SMS	Safety Management System
SUA	Special Use Authorization

sUAS	Small Unmanned Aircraft System
TFR	Temporary Flight Restriction
UA	Unmanned Aircraft
UAO	Unit Aviation Officer
UAS	Unmanned Aircraft System
UASAG	Unmanned Aircraft System Advisory Group
UATA	Unit Aviation Training Administrator
UAV	Unmanned Aerial Vehicle
USDA	United States Department of Agriculture
USFS	United States Forest Service
VO	Visual Observer
WCF	Working Capital Fund

Refer to FSM 5705 for further definitions and acronyms.

Appendix B: UAS Acquisition Form (FS-5700-13B)

FS-5700-13B

U.S. Forest Service Small Unmanned Aircraft Systems Acquisition Request Form

Version 1.0

Note: This form is to be used for aircraft that are under the $25K capital asset threshold.

The Custodian (Pilot) will fill out the following information and return to applicable Forest Aviation Officer (FAO). If the FAO concurs, then the form shall be forwarded to the Regional UAS Coordinator or Regional Aviation Officer (RAO) for approval. The RAO will then forward to National UAS Program Manager or National UAS Fleet Manager.

1. **Information of Custodian (Pilot) Requesting UAS Asset**

Name:	
Phone Number(s):	
Email Address:	
District/Forest/Region:	

2. **Do you acknowledge that UAS are legally considered "Aircraft" when used by the Federal Government, and therefore subject to Forest Service or FAA financial and operational policies and regulations?**

   Yes____ **No** ____

3. **Does your immediate Supervisor accept the financial and operational responsibilities along with the educational requirements as defined in the Forest Service Standards for UAS Operations?**

   Yes____ **No** ____

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4. **Number and type of system to be acquired:**

Aircraft	Quantity of Aircraft

- **Note: Some systems/equipment require specialized training. Individual Pilot Cards must have endorsement to fly the model requested or equipment (Ignis).**

5. **Describe the Proposed/Planned/Anticipated mission to be conducted by the UAS asset your Unit is acquiring:**

6. **Does your future UAS budget planning recognize that there will be additional financial responsibilities for maintaining proficiency and travel for Remote Pilot training? This amount will vary depending on the number of Remote Pilots and complexity of program. Personnel should account for regular proficiency flights as well as attending refresher training every 24 months.**

   Yes____, I have supervisor and fiscal commitment to maintain proficiency, travel and support future training.

   No____

FS-5700-13B

Executive Summary of UAS Requirements

General Conditions:

● Remote Pilot in Charge (PIC) will submit UAS use reports via the UAS Mission Management Sharepoint Site for all UAS flights.

● Custodian (Pilot) will report to FS UAS Fleet Manager/FS UAS Program Manager any damaged or unserviceable system parts and/or components.

● PIC will submit SAFECOMS when applicable.

● PIC will follow all airspace requirements outlined in the Forest Service Standards for UAS Operations.

● Custodian (Pilot) will submit all requests for UAS or payload modifications through FS UAS Fleet Manager/FS UAS Program Manager.

● Custodian/PIC will not make any modification to aircraft or payloads without prior approval of UAS Fleet Manager.

● Forest/Unit Aviation Officer, Regional UAS Specialist, and/or RAO will ensure that all assigned UAS are flown and operated by trained, carded, and current UAS Remote Pilots.

● Forests/Regions are responsible for funding all travel and related costs associated with approved UAS training.

● For informational purposes, Forests/Regions are asked and encouraged to provide FS UAS Program Manager with After-Action Reports (AARs) and any lessons learned.

● Custodian/Forest/Region will ensure UAS security is provided utilizing a secure and locked storage facility, building or location.

● PIC's/Custodians/Forests/Regions will follow all policy in Departmental Regulation 3465-002 on Privacy, Civil Rights, and Civil Liberties with UAS. www.ocio.usda.gov regulation-3465-002.

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Signatures /Approvals

Requesting Individual	Date:
Forest/Unit Aviation Officer	Date:
Regional UAS Coordinator/RAO	Date:
National UAS Program Manager/National UAS Fleet Manager	Date:

Appendix C: Mission Planning Considerations

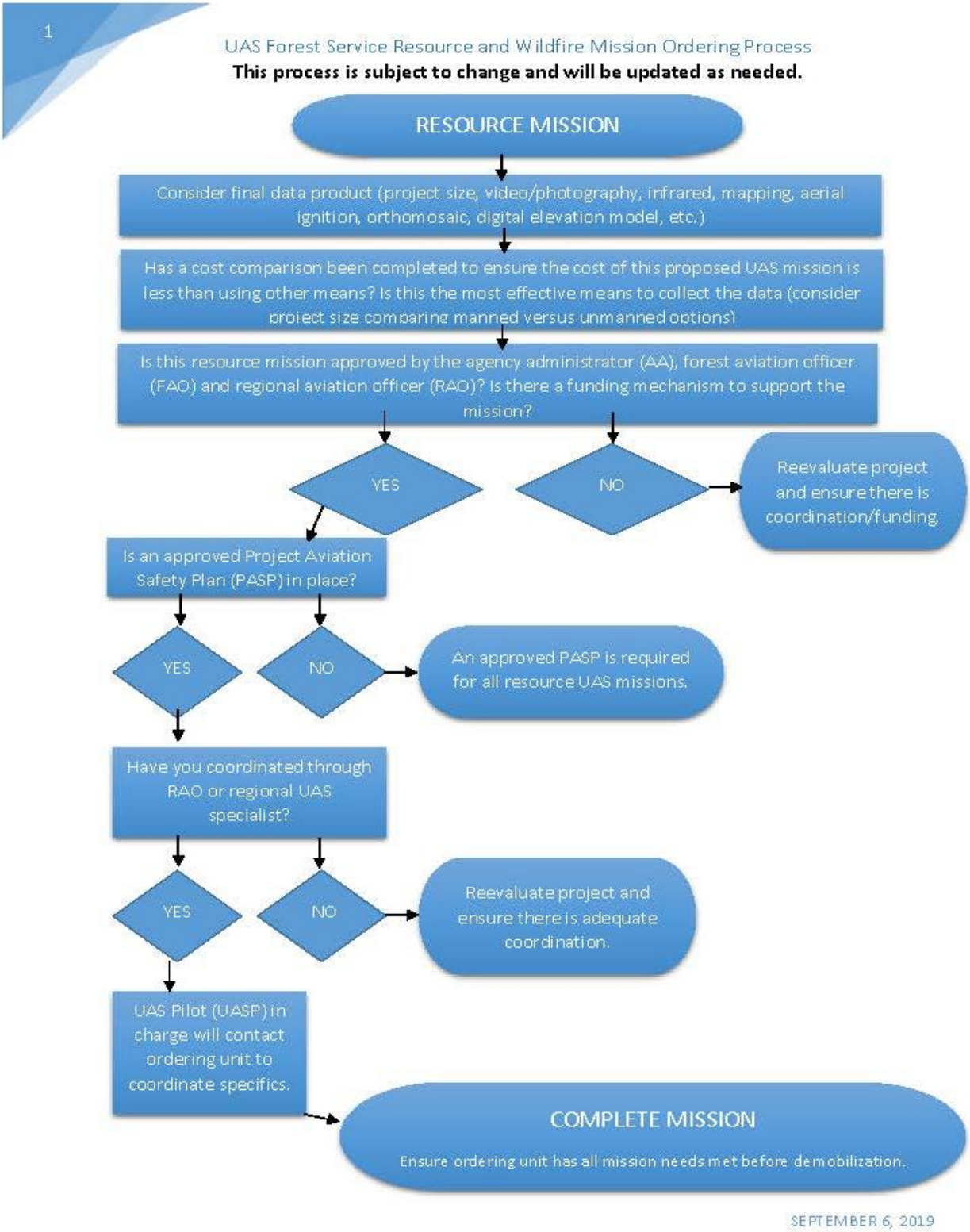
- Can this mission be conducted in compliance with FAA Part 107?
- Has this mission had the appropriate review and approvals (e.g. Forest/Zone Aviation Officer, Regional UAS Specialist)
- Can this mission be successfully completed with the available UAS?
- All actions and contingencies for the mission planned.
- Contingency planning should include safe routes in the event of a system failure, degraded performance, or lost communication link, if such a failsafe exists.
- Prepare as much as possible in the office by reviewing Google Earth, Sky vector, Acronical Maps, Foreflight, and Aviation weather reporting websites.
- Review the flight location with B4UFly or AirMap applications to determine proximity to airports and heliports
- Prepare for automated mapping missions with a completed preliminary flight plan
- Determine if a camera operator is needed
- Determine how many VO's are needed for safe and efficient operations
- Verify that appropriate staffing can be allocated to the mission
- Mission plans and flight plans should be shared with the entire mission flight crew and other operators in the vicinity.
- If the mission will have the UAS flying over people or moving vehicles, obtain a FAA Waiver, or notify the Forest/Zone Aviation Officer or the mission cannot be conducted
- Verify that any applicable FAA approved waiver/authorization is current and carried with the UAS
- Fatigue normally becomes a factor after 16 hours without rest; however, lack of quality sleep builds a deficit that worsens the effects of fatigue

Site-specific considerations

- Hazards / Site selection
- Check for wires / cables
- Animals
- People / Bystanders
- Property in the vicinity
- Air traffic in the vicinity
- Site is away from nonessential participants
- Ability to maintain adequate buffer zones between aircraft and personnel
- Minimize departures and landings over populated areas
- Consider local topography, ensuring a visible line of sight towards the UAS at all times. Ensure the telemetry connection is not obstructed.
- Investigate potential alternative landing sites in case take-off site is obstructed.
- Psychological/physiological considerations (are you well rested, rushed, are you being pressured by client, at least 8 hours of rest?)
- Weather considerations: Temperature, Visibility, Precipitation, Wind Speed, Upper winds / at altitude
- Rotor obstacle clearance
- Notify any bystanders or nearby property owners of your intentions (permission)

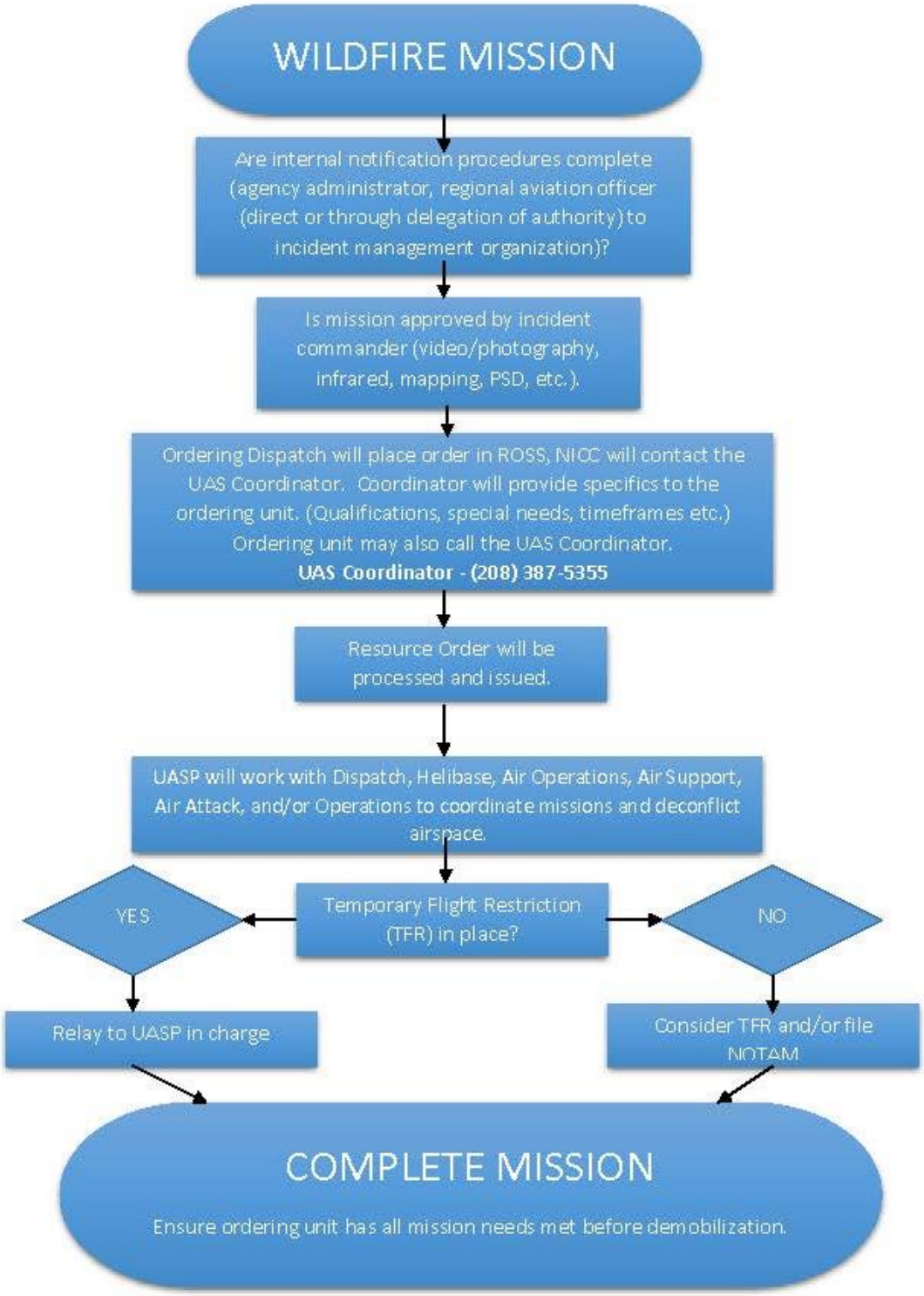
- Discuss flight plan with your co-pilot, camera operator, and visual observers
- If flying in controlled airspace, do you have a proper airspace authorization or wavier?
- Can you reach authorities in the case of an emergency?
- Do you need to maintain communication? Ensure flight crew has the necessary number of radios. First Aid Kit stocked, readily accessible and visible to anyone in the area.

Appendix D: UAS Ordering Process



UAS Forest Service Resource and Wildfire Mission Ordering Process

This process is subject to change and will be updated as needed.



SEPTEMBER 6, 2019

Appendix E: Revision and Amendment

Users are encouraged to recommend changes to the Forest Service Standards for UAS Operations guide annually through their Regional UAS Specialist or Regional Aviation Officer. Recommended changes will be reviewed annually by the FS National UAS Program Manager. The following chart may be used to track suggested and approved document revisions and amendments. For each revision or amendment, please enter the following information:

1. Tracking number.
2. Chapter and Section where the revision or amendment was made.
3. Brief description of the revision or amendment.
4. Date approved or denied by appropriate official.

Tracking Number Month/Year/Number	**Chapter/ Section**	**Brief Description**	**Person Submitting**	**Date approved or denied**
EXAMPLE: 12-2019-01	2/Insp Pilot	Additional Inspector Pilot responsibility.	Chet Mariana	02-2019 (denied)