

AVIATION PROCEDURES MANUAL



LAST REVISED IN APRIL 2024 BY THE ODF AVIATION UNIT. THIS VERSION
WILL REMAIN CURRENT UNTIL SUPERSEDED BY A NEW VERSION.



Aviation Risk Assessment

1. Is the flight necessary?
2. Who is in charge of the mission?
3. Are all hazards identified and have you made them known?
4. Should you stop the operation or flight due to changes in conditions?
 - a. Communications?
 - b. Weather/turbulence?
 - c. Confusion?
 - d. Equipment?
 - e. Conflicting priorities?
 - f. Personnel?
5. Is there a better way to do it?
6. Are you driven by an overwhelming sense of urgency?
7. Can you justify your actions?
8. Are there other aircraft in the area?
9. Do you have an escape route?
10. Are there any rules broken?
11. Are communications getting tense?
12. Are you deviating from the assigned operation of flight?

The twelve questions listed above should always be applied to all aviation operations. If you have any questions that cause you concern, it becomes your responsibility to discontinue the operation until you are confident that you can continue safely.

**Aviation safety is a personal responsibility.
Do you have the moral courage to speak up?
Your life and the lives of others depend upon your decisions!**

Helpful Links

<https://www.oregon.gov/odf/fire/Pages/aviation.aspx>

ODF Aviation Resources & Call When Needed



<https://www.safecom.gov/>

Interagency SAFECOM



<https://www.nwcg.gov/sites/default/files/publications/pms510.pdf>

NWCG Standards for Helicopter Operations



www.aff.gov

Automated Flight Following



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Introduction

Purpose

The Aviation Procedures Manual (APM) is for use by Oregon Department of Forestry (ODF) personnel and other persons involved in administration, management, use of contracted, Call When Needed (CWN) aircraft, and/or ODF owned aircraft. District Foresters and aviation management personnel are responsible to ensure that the following actions occur on all operations where ODF is the “Operator of the Aircraft”.

The procedures in this manual provide specificity and clarity about the management and use of aircraft by ODF. It is important that these procedures are shared with cooperators, aviation operators, and other interested parties so that all parties are aware of the performance expectations. These procedures will evolve as experience and knowledge is gained and thus will also reflect an institutional memory of the department. Finally, this manual includes information to ensure that necessary coordination occurs with U.S.D.A Forest Service and Bureau of Land Management (BLM) aviation activities that affect or may be affected by ODF aviation operations.

This procedures manual is also a basic document for planning the **SAFE, EFFICIENT, and EFFECTIVE** use of aviation assets to meet ODF needs, without mishap.

Coordination

Coordination and direction of aviation activities is provided through the Protection from Fire Division and staff. The ODF Aviation Unit is responsible for coordinating the use of agency owned aircraft, as well as coordinating aviation activities with the field, various publics, private persons, and cooperators. The roles and responsibilities of the ODF Aviation Unit staff, to include the State Aviation Manager, State Aviation Coordinator, State Aviation Operations Specialist, Chief Pilot, and Area Aviation Coordinators can be found in the ODF Air Operations Policy.

Situation

ODF utilizes fixed wing aircraft, rotary wing aircraft, and unmanned aerial systems (UAS) extensively in the daily performance (or conduct) of the department’s mission. This manual will assist employees, pilots, dispatchers, aviation field managers, contractors, and other cooperators in understanding the operation of ODF’s aviation management system.

This manual sets forth aviation-related policies and procedures that:

- Will reduce the risk of mishaps occurring during operations.
- Will ensure consistent procedures and aviation management.
- Will act as a reference to provide the basic knowledge to conduct ODF’s air operations without accident or incident.

Since hazards of flight in the natural environment may be subject to changes in risk, only qualified personnel, with appropriate equipment, can be assigned to each task. Assigned personnel must have the personal discipline to always comply with necessary operational procedures to meet task requirements.

Policy

The preservation of forests and the conservation of forest natural resources, through sound resource management, and the prevention and suppression of forest fires hereby are declared to be the public policy of the State of Oregon.

ODF’s aviation activities are a component of a complete and coordinated forest management system. These activities include, but are not limited to: airtanker operations, helicopter operations, light fixed-wing operations, and UAS operations.

ODF Aviation Mission Statement

To serve the people of Oregon through standardized operating procedures to ensure safe, efficient, and cost-effective aviation operations.

ODF Aviation Vision Statement

- The vision of Oregon Department of Forestry's aviation program is to suppress wildland fires, provide appropriate aircraft for a variety of missions, and support all facets of the agency's natural resource management programs through the safe, efficient, and timely use of aircraft.
- To maintain a constant state of readiness through preseason fire aviation planning.
- To provide aircraft and qualified/trained personnel for all state aviation operations that are ODF's responsibility.
- To aid, when requested and available, other disciplines and agencies for aviation related activities.
- To develop, review, and update agency aviation policies and procedures as necessary to accomplish our mission.
- To support and encourage communications between ODF and its cooperators, to enhance working relationships.
- All personnel will be held accountable to comply with agency operational policies and procedures to meet task requirements.

Direction

All aviation operations will be in accordance with the ODF Air Operations Policy, applicable operating plans, aircraft agreement or contract (when applicable), and this APM. All aircraft and pilots will meet applicable provisions of federal, state, and local laws, regulations, including Federal Aviation Regulations (FARs), which will be considered minimum standards.

District Foresters have the authority to deviate from ODF policies only in a life-threatening emergency. If ODF policies and procedures are not followed, a written justification will be forwarded to the State Aviation Manager within 72 hours. This justification will be reviewed by the Aviation Working Team and the Executive Team for further action if necessary.

Operational Control

The FAA defines operational control of an aircraft as the exercise of authority over initiating, conducting, or terminating a flight. This means the entity which is responsible for the safety and regulatory compliance for a particular flight. ODF employees or agents of the department shall not direct the operation of any aircraft not under contract or ownership of ODF or other partners or entities.

Determining Operational Control

On aviation operations involving different agencies and/or states, which agency and/or state aviation policies and procedures to follow may not be clear. This can be determined by which agency is the operator of the aircraft.

The operator of the aircraft is determined by four questions:

1. **Which agency ordered the aircraft?** (*Whose resource order?*)
2. **Which agency is paying?** (*Who will pay the vendor directly?*)
3. **Which agency is directing the aircraft?** (*Who is determining and controlling the missions?*)
4. **Which agency is benefiting from the aircraft?** (*This will often apply to more than one agency.*)

The answers to these questions will help determine which aviation policies and procedures apply. When deployed on an out of state assignment or with another agency, take time to review the hosting agencies policies and procedures, and don't hesitate to ask questions for clarification when necessary.

Aircraft & Pilot Approvals

Aircraft and pilots must be approved by ODF before they can be utilized for agency business. Aircraft and Pilots are considered approved if one or more of the below criteria are met.

- Current contract with ODF, USDA Forest Service, or Department of Interior (DOI).
- Listed in the Protection Division's annual CWN Aircraft list.
- Obtained through the Northwest Wildland Fire Protection Agreement (Northwest Compact).
- Oregon National Guard Aircraft obtained through OPLAN SMOKEY (emergency declaration needed).
- Other State agency aircraft (as appropriate).

Aircraft Procurement

All planned aviation needs that are not emergency in nature and over \$5,000 must be hired in accordance with agency and DAS procurement policies and procedures.

Emergency Situations

Every District is required to have a current Aviation Mishap Response Guide and Notification List to respond to aviation emergencies. Mishap Response Guides will be reviewed annually and filed in Microsoft Teams > [Field Resources](#) > Aviation Resources > Mishap Response Guides.

Definitions:

Aircraft Incident - An "aircraft incident" is any occurrence (other than an accident) associated with the operation of an aircraft which affects or could affect the safety of operations. Included are all unsafe conditions, unsafe equipment, unsafe actions, and near misses or close calls. Reporting of aircraft incidents should lead to corrective actions that could prevent future accidents.

Aircraft Accident - An "aircraft accident" is any occurrence associated with the operation of an aircraft which takes place between the time any person boards an aircraft with the intention of flight, and all such persons have disembarked, and in which any person suffers serious injury or death, or in which the aircraft receives substantial damage.

Overdue Aircraft - An aircraft normally will be initially considered "overdue" when it has not completed the required check-in by radio or telephone within the time specified in the flight following request. This time frame may be an elapsed period such as "every 15 minutes" for reconnaissance flights or estimated Time of Arrival (ETA) at a destination or reporting point.

Search and Rescue Operations

Responsibility for initiating searches for ODF controlled aircraft rests with the District Forester, Area Aviation Coordinator, dispatcher, or district aviation contact. Calling 911 is the way to initiate Search and Rescue operations. Ground searches are initiated through 911 and coordinated by the local county Sheriff's Office. Search and Rescue operations using aircraft are initiated through 911 and the Office of Emergency Management (OEM), Oregon Emergency Response System (OERS) 1-800-452-0311, 24 hrs./day (This includes the Oregon National Guard, and U.S. Coast Guard.).

Procedure: Any ODF employee who knows an aircraft has crashed should notify Dispatch. The Dispatch office will notify the proper emergency personnel via 911. Dispatch will notify the District Forester, State Aviation Manager, Area Aviation Coordinator, Unit Forester, and District Aviation Contact.

Medical Evacuations

It is recognized that when injuries occur in a remote location, aircraft can be a required tool to either effect a rescue or transport the injured person to a medical facility.

This option should not be an automatic request. It is imperative you evaluate the situation for the best method of extracting the injured person, based upon the injury, location, and urgency of the emergency (i.e., life, limb, or eyesight).

Initial questions after an accident resulting in injury:

- Patient Status - extent of injuries, responsiveness, signs of shock, head/neck injuries, visibly broken bones etc. Obtain as much information as possible.
- Location - legal location, latitude & longitude (WGS 84) and landmark.
- Is there road access nearby? If so, would transport by vehicle cause a negative effect on the condition of the injured person(s)?
- Aviation Access- what are the constraints if a medevac is needed? Is there a potential landing zone close by? Is the patient on a steep slope or surrounded by tall timber [that may limit hoist operations](#)?
- Is a call to 911 needed to activate emergency services?

If the decision has been made to order a life flight MEDEVAC helicopter the following can be expected once the aircraft has been activated and arrives on scene:

- Patient Information – the crew may request additional information about the patient.
- Landing zone - assign one person to set up and secure the landing zone, communicate with the pilot, and be responsible for supervising the safe operations of those persons working around the helicopter. This person should monitor the air to ground frequency.
- Weather conditions – be prepared to report local weather conditions clouds, wind, and visibility.
- Approaching the aircraft:
 - Always get approval from the pilot before approaching the aircraft and then approach only with directions from the pilot or crew.
 - If the helicopter has landed on a slope, approach and depart from the down-slope side only.
 - Do not hold anything above your head, such as IV bags or equipment.

The above outlines a "normal" MEDEVAC situation. As we all know we cannot count on each situation to be "normal". There are other aviation options available depending upon the situation and availability.

Aircraft Using a Hoist or Winch System

This should always be the first option when a helicopter cannot land in the area. A private contractor can accomplish this if the aircraft has the appropriate equipment, and the pilot and crew are qualified to perform the mission. The U.S. Coast Guard and Air National Guard are trained to perform this mission and are also available (OERS 24/7 phone number 1-800-452-0311).

Emergency Short-Haul Operations

****ONLY USE IN LIFE THREATENING SITUATIONS WHEN THERE ARE NO OTHER OPTIONS****

Definition of Short Haul Transport: To transport one or more persons externally suspended below a helicopter.

It is recognized that in certain types of situations, there is a need for specialized insertion/extraction techniques. The responsibility of performing "Short-Haul" operations (Human External Loads) safely is to prevent hazards to human cargo, aircraft, pilot, and ground personnel. Short haul allows for the insertion and removal of personnel from treacherous terrain that is inaccessible by other means and where an adequate and safe helicopter landing zone is unavailable.

A rescuer, wearing an OSHA approved short-haul harness and/or following Oregon OSHA regulations, can be transported from one location to another on a line beneath an approved helicopter that is flown by a highly experienced pilot who has been certified for the operation. The certification can be either federal carding or a private company certification program. Employees must analyze each situation thoroughly before any action is taken.

When considering the transport of a patient using a long line (short haul) consider the following prior to utilization:

- Is it wise to move the patient at all?
- Has a medically qualified person requested movement of the patient?
- Has the severity of the injury been determined?
- Is the injury of such a severity that it threatens life, limb, or eyesight of the patient? What would be done if a helicopter were not available?
- Is the benefit worth the risk involved?
- Is the use of a long line necessary?
- Are we using short haul because it's convenient?
- Is our action tenable? (Can you justify it in writing post incident?)

The risk involved with moving a patient as an external load is severe and cannot be taken lightly. Short haul should only be considered as an option in life threatening emergency situations.

If a short haul transport is conducted, a written report describing the incident must be filed with the State Aviation Manager for review within 10 days. The report should include all pertinent information such as what injury occurred, the reason for the short haul, how the evacuation was accomplished, others involved, etc.

Air Ambulance Communications

Ground EMS and firefighting units must be able to directly communicate with an incoming air ambulance provider. Many times, an air ambulance cannot land unless a direct communication link is established for responding agencies on the ground.

During an event where multiple air assets are being utilized for an incident, the Incident Commander, Communications Unit Leader (COML), or Air Operations Branch Director (AOBD) will determine the operational protocol for air to ground communications. These protocols should be shared early and often with ground and aviation assets working at the incident.

Operational Safety

The intent of this section is to provide basic safety tools while working with and around aircraft. Each employee has the responsibility for using all the Personal Protective Equipment (PPE) and performing their duties in a safe manner. All ODF personnel working around aircraft will be trained and knowledgeable in aircraft use and safety. Information about the Safety Management System is provided in the Air Operations Policy.

Any person, agency, or contractor has the authority to terminate operations when the risk factors exceed acceptable limits. It is impossible to define all situations that may result in an unacceptable level of risk. Air crew members are expected to tell ODF management and aviation unit staff if they believe an inappropriate level of risk is being taken. **Safety will not be compromised in any situation.** Diligent use of applicable State and Federal regulations is required for safe aviation operations.

Safety Reporting

Submit a SAFECOM for any conditions, acts, observations, circumstances, or maintenance problems that led to, or could have led to, an aircraft mishap. This includes any significant damage to an aircraft that renders it unairworthy, even temporarily. When a mishap or issue occurs notification will be made to the Aviation Unit as soon as operationally feasible and a SAFECOM must be filed within 72 hours of the mishap.

SAFECOMs can also be submitted to recognize good acts, events, and circumstances associated with aerial operations.

Flight Hazard Maps

Flight hazard maps are created by USFS Region 6. Requests for changes to the flight hazard maps will be solicited annually by the Area Aviation Coordinator or State Aviation Operations Specialist. The flight hazard map should be checked prior to flights or missions planned for below 500' AGL. Flight hazard map links will be provided by the Area Aviation Coordinators each year when Region 6 updates them.

Flight Time and Duty Limitations

Reference: ODF Air Operations Policy

Flight Time Limitations

The Pilot in Command may not fly more than 8 hours per day regardless of mission type (e.g., water bucket work or recon platform). Dual-piloted aircraft (aircraft where the pilot and co-pilot can interchange duties as Pilot in Command) can fly 10 hours total per 24-hour period. Pilots may not exceed 40 hours of flight time in any seven consecutive days. In the event of night flight with dual-piloted aircraft, no more than 6 hours of flight will be allowed at night or under NVGs.

The incident AOB, ODF State Aviation Manager, or ODF State Aviation Operations Specialist can increase the safety standard by decreasing the number of flight hours per day a pilot can fly if in their opinion the situation warrants it. This should be done in coordination with the Incident Commander or District Forester. Limitations will be adhered to except in cases of a life-threatening emergency. Contact the District Forester or State Aviation Manager with any questions.

Duty Time Limitations

Pilots flying for fire suppression operations may not be on duty for more than 14 hours in any 24 consecutive hours. Each pilot shall have a minimum of 10 consecutive hours of rest during any 24-hour period to the start of the next duty period. All pilots must be relieved of duties and be given a minimum of 2 days off in any 14-day period.

Pilot and Aircraft Performance Policy

If a CWN or contract pilot or aircraft, while operating on an ODF incident is involved in an *aircraft incident* or substandard performance is observed, that pilot will immediately be required to return to base (if it can be done safely). This instruction can be verbal and followed up immediately in writing.

The pilot or aircraft will not be used by ODF for any purpose until the on-scene ODF aviation manager can substantiate the preliminary facts of the incident. If the aviation manager determines that the incident is immediately correctable, or not under the pilot's control, the pilot and aircraft can be returned to duty once the unsatisfactory condition or performance issue has been corrected.

Return to duty is at the sole discretion of the ODF on-scene aviation manager. When an incident occurs, the on-scene aviation manager *must* document the incident using a SAFECOM. The State Aviation Manager or State Aviation Operations Specialist will determine if any further action is necessary.

If the determination is made that further action is required, the Aviation Unit will attempt to determine the cause of the incident, and what further action should be required. If the determination is probably pilot error or faulty equipment, the pilot or aircraft can be suspended from flying. The pilot or aircraft vendor will have an opportunity to appear before the ODF Fire Aviation Working Team to present their evidence and facts of the incident. The investigation shall be completed within 45 days of the incident.

If the investigation determines that the incident was due to unsafe actions, or unsafe equipment, the pilot or aircraft vendor could be suspended from flying for ODF. Removal from the ODF CWN Aircraft List will be for an indefinite period, or until the pilot/aircraft vendor can show corrective actions have occurred to ODF's satisfaction.

Policy on Reinstatement to ODF Service

If a pilot or aircraft vendor has been suspended due to the finding of an ODF investigation, the pilot or aircraft vendor may be reinstated through the following process:

Pilot: The pilot will be required to pass a check flight administered by a pilot designated or approved by ODF. This flight will be tailored to check the specific deficiencies determined by the investigation. This flight will be at the expense of the pilot seeking reinstatement.

The pilot will be required to obtain satisfactory performance appraisals by a qualified Air Attack or AOBD on three separate consecutive incidents. (This could be accomplished through another natural resource agency.) ODF is not required to provide the opportunities to obtain satisfactory performance appraisals.

Once the pilot or aircraft vendor performs satisfactorily on the items listed above, the pilot will be reinstated by the State Aviation Manager, to the ODF CWN list, as available for duty. Operators working under an exclusive use contract will meet the requirements outlined in the contract.

Aircraft: The aircraft vendor must show that corrective actions have been performed to the unsafe equipment. This includes but is not limited to reviewing maintenance logs and other documentation. The aircraft shall be flown a minimum of one (1) hour with the corrected equipment, before being hired back by ODF. A check-ride (or check-flight) may also be required to ensure the equipment deficiencies have been corrected at the owner's expense

All Crewed Air Operations

Aircraft Ordering Requirements How to Order Aviation Assets

Determine the type of mission you have for the aircraft, e.g., bucket work, sling loads, personnel transport, infrared imaging, GIS, air attack, reconnaissance/smoke patrol, etc.

Place a Tactical Aircraft Resource Order (TARO) through the locally assigned dispatch center. The minimum information needed from field personnel to start the order is the type of aircraft needed and mission type. The TARO can be found on Microsoft Teams in the [Field Resources library](#) in Aviation Resources > Forms folder.

Requests for ODF owned aircraft will be placed to Salem Coordination Center (SCC) from the local dispatch for processing. Non-emergency requests for ODF owned aircraft (such as point-to-point flights) will be communicated to the ODF Chief Pilot or State Aviation Manager for scheduling.

Note: Please ensure that the TARO is complete, accurate and has a priority assigned. Incomplete or inaccurate information will delay aircraft launch.

Aircraft Order Form Requirements

For the safe and efficient dispatch of aircraft, the following information must be clearly identifiable on all aircraft order forms:

- Latitude and Longitude *Degrees and Decimal Minutes
 - Most aircraft GPS units use **degrees and decimal minutes** as the standard. Many cannot be set to degrees, minutes, and seconds. Degrees and decimal minutes are also used by the FAA when issuing NOTAMs.
- Air-to-Air contact frequency
- Air-to-Ground contact frequency
- Flight Following contact frequency
- Aircraft currently on-scene and in transit to the incident; including aircraft working other incidents in proximity
- Aviation Hazards
- Military Training Routes or Special Use Airspace

Dispatch Priority Criteria

The primary mission of aircraft will be to provide direct aviation support for initial and extended attack wildfire suppression operations on ODF protected lands. Assignments to large fire support will be on a flight-by-flight basis. Aircraft will be requested and dispatched using the following priority criteria (in order of precedence):

1. Threat to human life, on any jurisdiction
2. Threats to natural resources
 - Initial attack (ODF, other agency, outside of Oregon)
 - Extended attack (ODF, other agency, outside of Oregon)
3. Structural protection, though indirect, shall not inhibit the protection of forest resources

Aircraft Tracking and Availability

ODF's Daily Aviation Resource Availability can be found at:

<https://www.arcgis.com/apps/dashboards/78813fad631b4a4c9c5ab2195760e387>

Pre-mobilization Checks and Briefings

Prior to all air operations the ODF Aviation Safety Checklist and pilot briefing will be completed.

ODF Aviation Safety Checklist

The intent of ODF Aviation Safety checklist is to document that the following information has been checked and relayed to the pilot of the aircraft prior to each assignment. This form is to be filled out prior to all flights or at the initial daily briefing for extended contracts, projects, or incidents. District specific forms may also be used to capture the required information. Form is in Appendix B and filed in Microsoft Teams > Field Resources > Aviation Resources > Forms.

Initial Pilot Briefing (Aerial Firefighting)

Pilot will be briefed on the following prior to fire operations:

- Ordering dispatch office phone number
- Aircraft currently in vicinity of planned flight
- TFR in place over incident with NOTAM # (if applicable)
- Known aircraft hazards (examples include)
 - Aircraft enroute or on scene
 - Powerlines
 - Radio or cell phone towers
 - Ultra-lights or hang gliders
 - Airports in the vicinity
 - Weather-winds, thunderstorms, etc.
 - Military training routes
 - Wind turbines/Met towers
- Radio frequencies
 - Flight following (national):
 - TX/RX 168.650
 - TX/RX Tone 110.9 (not available on all districts)
 - Air-to-ground (White Net)
 - TX/RX 151.310
 - TX/RX Tone 156.7 (or federal geographic area air-to-ground frequency)
 - Air-to-ground secondary (Blue Net)
 - TX/RX 159.2625
 - TX/RX Tone 156.7
 - Air-to-ground (Orange Net) use in DFPA, Medford Unit, Grants Pass Unit
 - TX/RX 156.0225
 - TX/RX Tone 156.7
 - NOTE: Actual Air-to-ground frequency must be communicated when ordering aircraft. Be advised that if your district is using the federal air-to-ground frequency, ODF employees coming from other districts to assist you may not have these frequencies programmed into their radios.
 - Air-to-air
 - See local aviation guide for local frequencies
 - Air Guard
 - TX/RX 168.625
 - TX Tone 110.9

- Ground-to-ground (Red Net) Unless other frequencies have been assigned to the incident
 - TX/RX 151.340
 - Tone 156.7
- Air-to-ground Air Ambulance/Air MEDEVAC “VMed29”
 - TX/RX 155.3475
 - TX Tone 156.7

Pilot Briefing (Non-Fire – Natural Resource)

- Duty Limitations: Pilot duty limitations and off-duty scheduling
- Flight Plan: FAA or agency flight plan filed
- Passenger manifest: List names and leave with the person doing the flight following prior to departure
- Flight following and radio equipment:
 - Flight following procedures in place
 - Radio equipment is adequate and operational
- Mission details: Nature and sequence of the mission
- Geographic area being flown
- Aerial Hazards: Analysis of known hazards-Known hazards discussed (Use a flight hazard map if flight is planned below 500’ AGL), and high-level recon prior to decent to low level, below 500’ AGL
- Environmental concerns

Pilot Briefing (Point-to-Point Passenger Transport)

Pilot will be briefed on passenger(s) name(s), weight(s), and destination(s).

Separation of Duties

When an ODF employee is on board the aircraft, there should be a clearly defined separation of duties between the pilot and ODF passenger/observer. The Pilot in Command is responsible for the operation and safety of the aircraft during flight time (Refer to 14 CFR Part 91). ODF passengers’ duty is to perform the tactical mission (e.g., Observer, ATGS, Reconnaissance, Survey, etc.).

Mission Essential Personnel

ODF operated (owned, contracted, or CWN) aircraft are restricted to mission essential personnel. Mission essential personnel may include, but are not limited to, fire operations personnel, project personnel, Incident Commanders, District Foresters, cooperating agency personnel, etc. The Incident Commander or District Forester should determine mission essential personnel. Aircraft will not carry unauthorized personnel at any time.

Passengers are not allowed to ride in a restricted category aircraft. However, in cases where the project manager deems it necessary to conduct a reconnaissance flight as **an essential part of the mission** a department employee can conduct the flight as a “crew member” on that aircraft. (See FAR Part 91.313(d)) Flying in restricted category aircraft should be considered the last means option and should be kept to the absolute minimum. ODF personnel should use all means necessary other than flying in restricted category aircraft to provide adequate orientation for the pilots. See Air Operations Policy.

Non-ODF employees

Cooperators of local government, companies, civic groups, media participants in rescue or emergency missions, etc., may fly in aircraft, but only after approval by the District Forester or designee except in life saving operations.

Operational Considerations

Public Aircraft Operations

ODF exercises authority to initiate, control, and terminate flights through the dispatching and resource ordering system. In so doing, ODF is exercising operational control. As such, and in the performance of firefighting or land management operations, the flight is considered a public flight (reference 14 CFR 1.1). However, this does not negate compliance with FAR Part 91 general operations and flight rules nor negate additional operating requirements as specified by the Contractor's Part 133, 135, or 137 operating certificates; except where the deviation is reasonably necessary to meet ODF's objectives. ODF acknowledges that special-use missions may conflict with FAR Part 91 and the Contractor's operating certificates. Special-use mission flights include, but are not limited to, aerial ignition, airspace and fire management, reconnaissance, search and rescue, law enforcement, fire suppression operations, and logistical operations.

After a contract award, the Contractor should notify the Flight Standards District Office that, in the performance of contract services, public operations will occur. More information on this notification can be found at:

https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_00-1.1B.pdf

Unless otherwise indicated herein, or otherwise authorized by the State Aviation Manager, the Contractor shall comply with the certifications and operation specifications of their 14 CFR Part 119, 133, 135, and 137 commercial operating certificates. Although ODF has elected to identify public flights and deviations that are necessary, this does not relieve the Contractor from adherence to aircraft airworthiness certification standards. Pilots shall conform to flight manual and federal airspace regulations unless a deviation is reasonable and necessary to meet ODF objectives.

The following list specifies deviations that are approved and further identifies flights that are considered public by ODF:

- Flights where compliance with minimum altitudes cannot be adhered to (Reference 14 CFR Part 91.119).
- Flights delivering fire suppressant or logistic supplies necessary to protect the public but could result in damage to property. (Reference 14 CFR Part 91.15).
- Flights without an FAA approved congested area plan. (Reference 14 CFR Part 113.33(d)(1)).
- Flights within 500 feet of persons, vehicles, or structures. (Reference 14 CFR Part 133.33(d)(e)).
- Flights in rotorcraft-type certificated in the restricted category over densely populated areas, in a congested airway, or near a busy airport where transport operations are conducted. (Reference 14 CFR Part 91.313(3) and 14 CFR Part 133.45(d)).
- Flights over congested areas without an FAA approved plan. (Reference 14 CFR Part 137.51(b)(3)).
- Flights performing external loads with ODF persons aboard. These flights are limited to cargo let-down, hoist, aerial ignition, and short haul. (Reference 14 CFR Part 133.35).
- Flights where the rotorcraft flight manual does not authorize doors to be opened, closed, or remain unsecured during flight. These flights are limited to rappel, short haul, cargo let-down, and hoist.
- Flights that ODF has elected to perform the passenger brief. (Reference 14 CFR Part 91.519 and 14 CFR Part 135.117)
- Flights that ODF has elected to manage stowage and security of cargo, whether external or internal.
- Flights that do not conform to 14 CFR Part 91 and 14 CFR Part 135 passenger security and egress. These flights are limited to rappel, short haul, cargo let-down, hoist, and aerial ignition.
- Flights that are special-use mission flights.
- Flights performing training or pilot examinations.
- Flights transporting hazardous materials. ODF assumes management of training requirements, packaging, loading, storage, record keeping, and exemptions approved by the Department of

Transportation (DOT). However, this does not relieve the Contractor or ODF from adhering to the NWCG Standards for Aviation Transport of Hazardous Materials, nor abiding by the DOT exemption.

Instrument Flight Rules (IFR)

All flights on IFR flight plans shall be operated in accordance with the Federal Aviation Regulations. Single-engine aircraft may be operated on IFR flight plans provided such flights do not involve flight in Instrument Meteorological Conditions.

Night Flight

This is defined as 30 minutes after sunset until 30 prior to sunrise. Without prior agency approval, night flying will not be permitted. Transportation of ODF passengers at night in single-engine airplanes or helicopters is prohibited. Night flying will not be permitted to or from airports that do not have an operational runway lighting system. Minimum acceptable airport lighting systems will consist of runway boundary and threshold lights. Departures that terminate at an airport 30 minutes or more after sunset shall comply with the lighting requirements.

Low-Level Flight

Operations using fixed-wing aircraft and helicopters performing water bucket, sling loads, rappel work, retardant drops, or air tactical work shall comply with the appropriate FARs.

IMPORTANT: Low level flights (below 500 feet AGL) can be extremely hazardous. There are numerous flight hazards such as power lines, cell towers, and radio towers that may not be indicated on flight hazard maps. These hazards are especially prevalent in stream canyons, saddles, and along roads. Low level missions (below 500 feet AGL) shall only be flown after a high-level reconnaissance has been conducted to determine the area is safe.

Transportation of Hazardous Materials

On approval of the Pilot in Command, Hazardous Materials can be flown internally on the aircraft. The transportation of hazardous materials must comply with the Interagency Aviation Transport of Hazardous Materials NFES 1068 Handbook. When the pilot and aircraft have an FAA approved Hazmat Certificate, hazardous materials must be transported in compliance with the issued Hazmat Certificate. (This certificate can be found online at: <https://www.oregon.gov/odf/fire/Pages/aviation.aspx>)

Aerial Supervision

Operations involving more than three aircraft or mixture of airtankers and rotary-wing aircraft over an incident will be supervised by a qualified Air Tactical Group Supervisor (ATGS).

- Aerial Supervision Module: No additional staffing required.
- Recon Flights: Recommend Aerial Observer (not required for state protected lands). Pilot may function as observer.
- Air Attack: ATGS is required to direct other aircraft over an incident.

Radio Identification

All aircraft will use some identifying designator when communicating on the radio, for example: "Lead 66", "Tanker 61", "Jumper 78Z", "Helitanker 797", "Helicopter 3NP" etc.

Listed below are the standard terms to be used:

- Fire Recon = Recon #
- Aerial Survey = Survey #
- ODF Non-Fire Aircraft = ODF Admin Flight #
- Helicopters = Helicopter #
- Helitankers = Helitanker #

- ATGS (in an aircraft) = Air Attack, Air Attack #, or Incident Name Air Attack.
- CWN point-to-point ferry or repositioning flights need to identify the aircraft Make, Model, and N number (example: Bell 212 N546RJ)

Fire Traffic Area (FTA)

The FTA was developed by aerial firefighting personnel to provide a standardized initial attack airspace structure to enhance air traffic separation for ALL AIRCRAFT over wildland fire (or other) incidents. The FTA requires that all aircraft responding to a specific fire be in contact with and follow the directions of the “aerial supervisor” (Air Attack, Lead Plane, or Incident Commander, etc.) prior to entering the FTA.

The FTA utilizes a five (5) nautical mile (nm) radius from the incident latitude and longitude. 5nm is the normal radius, however, a radius greater or less than 5nm may be used to adapt to unique incident demands.

- The FTA height is flexible and can vary depending on the operational requirements of participating aircraft, or by the requirements of the incident itself.
- Negative radio contact requires holding a minimum of 7nm from the incident.
- Radio communication is initiated at 12nm from the incident latitude and longitude.
- The FTA designation is unique to land management agencies. It is not part of the National Airspace System.

FTA Clearance

Initial radio contact needs to be made by 12 nm out from the fire to receive clearance into the FTA prior to 7nm. Monitoring the air tactical frequency while enroute will allow the pilot to determine the appropriate time to establish radio contact with the aerial supervisor. Establishing communications earlier rather than later will often improve efficiency over the fire. Remember a clearance is required to enter the FTA. Initial radio contact should include:

- Aircraft call sign.
- Distance and direction from fire.
- After receiving clearance into the FTA, pilots should plan to arrive at 7nm from the fire at their assigned altitude at 150 knots airspeed (KIAS) (or less when applicable). Large airtankers may need to operate at higher air speeds. Captains of such aircraft shall advise the aerial supervisor of entry speeds exceeding 150 KIAS.
- If radio contact cannot be established, pilots should maintain VFR and hold on the 7nm arc from the fire, with left turn orbits around the fire.

3 C's

- Communication – established.
- Clearance - received and understood.
- Comply - comply with the clearance. If you cannot, remain clear of the FTA until you receive an amended clearance with which you can comply.

If communications are not established, hold at a 7nm arc from the fire, with a left-hand orbit around the fire.

Large Incident FTA

Large incidents will often have airspace requirements and TFRs that exceed the dimensions of the FTA. In this case initial points (IPs) are used in conjunction with transition routes to and from the incident.

Note: Do not assume that all arriving aircraft have been briefed on the IP. Aircraft arriving from other geographic areas may possibly fly over your operations area to reach the IP or the original initial attack latitude and longitude.



NWCG Fire Traffic Area (FTA)

NWCG Standards for Aerial Supervision, PMS 505,

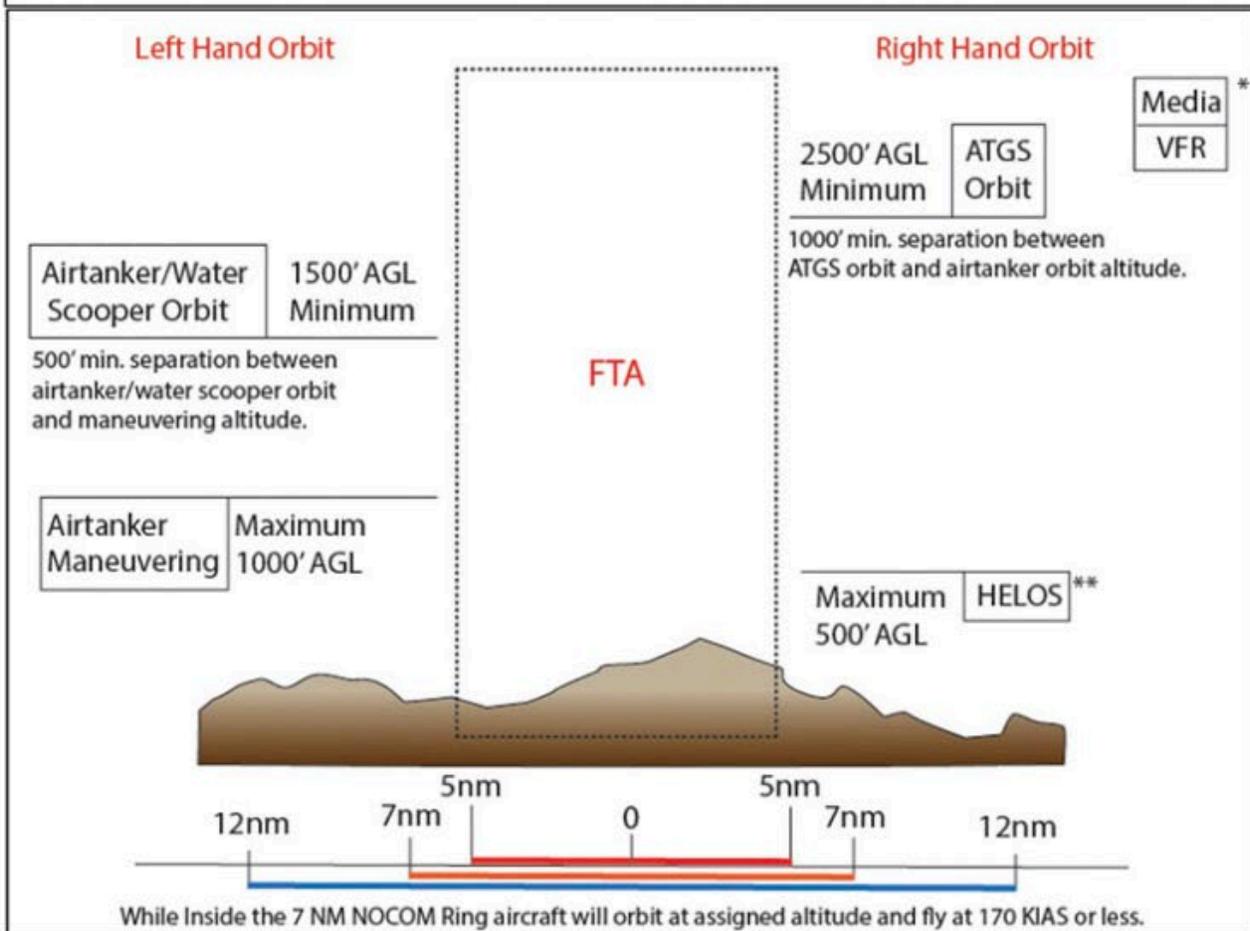
<https://www.nwcg.gov/publications/505>

*****Clearance is required to enter the FTA*****

Initial Radio Contact: 12 nm on assigned air tactical frequency.

No Radio Contact: Hold a minimum of 7 nm from the incident.

Note: Airtanker maneuvering altitude determines minimum airtanker and ATGS orbit altitudes. Assigned altitudes may be higher and will be stated as MSL.



* Media and IAA Aircraft: Maintain VFR separation above highest incident aircraft or at the altitude assigned by the controlling aircraft.

** Helicopters: Fly assigned altitudes, orbits, and routes.

| | | | |
|-------------------------------|------------------------------------|---------------------------|---|
| Airtanker Base As Assigned | Air Guard 168.625 Tx Tone 110.9 | Air to Air As Assigned | National Flight Following 168.650 Tone 110.9 TX and RX |
|-------------------------------|------------------------------------|---------------------------|---|

Temporary Flight Restriction (TFR)

The Temporary Flight Restriction, when requested, is established around a fire by the FAA, and a NOTAM is issued describing the location, dimensions, and contact information for obtaining a clearance to enter the TFR. Ordering TFRS FAR Part 91.137. Reference ODF Incident Volumes.

A TFR should be considered whenever any of the following occur in conjunction with ODF managed air operations.

1. Multiple incidents within proximity may cause a potential hazard to aircraft.
2. Extended aviation operations are anticipated.
3. Congested areas area involved (e.g., airports, Victor airways)
4. There is a high potential for sightseeing aircraft.
5. There are extended operations within Military Training Routes (MTRs) or Special Use Area (SUA).
6. When an IMT has been ordered.
7. "See and Avoid" capability is reduced or compromised.

Note: The District Forester, Incident Commander, AOBD, or their designee may determine the need to request a TFR if they feel there is a need to restrict the airspace for other safety reasons.

TFR Requests

The IROC request is initiated through the local dispatch office or through SCC. The TFR will be documented on the Aircraft Order and assigned an "A" number. Accompany the resource order with an *"Interagency Request for Temporary Flight Restriction"* form. Once all the required information is documented and verified, the request will be created in IROC and the TFR parameters, etc. will also be completed in IROC. The order will then be placed with SCC or NWCC if you are part of an interagency fire center. NWCC will then place the TFR request through appropriate FAA channels (Seattle Center-ARTCC). Once a NOTAM number has been assigned it will be posted in IROC as a "fill" on the resource order.

There are times in the Pacific Northwest when increased activity may create the need to establish a centralized TFR coordination and ordering point. Specific process information would be published if this need arises.

TFR Notification Process

Once a TFR is in place, this information should be communicated so everyone involved with the operation is aware of the situation. This should include the Area Aviation Coordinator, district office, local dispatch, neighboring units, any aircraft on the incident or being dispatched to the incident, and ground personnel involved in the operation. It is recommended that a copy of the NOTAM be posted at any local airport.

TFR Cancellation Process

Once the decision has been made to cancel the TFR, release the assigned "A" number in IROC. Call SCC or NWCC to verbally inform them the TFR has been canceled. Make sure to advise those who have been affected by the TFR that it has been canceled.

TFR Airspace Coordination

Prior to entering an active incident airspace or TFR, pilots must coordinate with the ATGS, Incident Commander, AOBD, or dispatch, and communicate with any other airborne agency aircraft assigned to the incident. When approaching the incident airspace, the pilot should make the initial call to the incident at 12 nautical miles out. **Before entering the TFR or coming closer than seven (7) nautical miles of the incident, the pilot shall:**

- Establish radio communications with incident Air Attack, or Incident Command.
- Receive clearance to enter the airspace.
- If the pilot cannot make contact, aircraft shall remain clear of the TFR or airspace until clearance to the TFR has been received.

If communications are not established, hold outside of the seven (7) nautical mile ring until they are established. Any violation of this is considered an aircraft incident and will require an incident/accident report to be filed within 72 hours with the District Forester and the State Aviation Manager.

Responses to Airspace Conflicts and Intrusions

When incident airspace conflicts and intrusions occur, the aerial supervisor must:

- Immediately ensure the safety of incident aircraft.
- Notify incident aircraft in the immediate area of the position of the intruder.
- Attempt radio contact with intruder aircraft by use of VHF-AM (known as Victor, local Unicom) and VHF-FM (assigned, local, or Air Guard) frequencies.
- If radio contact can be established, inform the intruder of the incident in progress, airspace restriction limitations in effect, and other aircraft in the area. Determine if the intruder has legitimate authority to be in the TFR.
- Request the intruder to depart the restricted area (assign an altitude and heading if necessary). Request the intruder to stay in radio contact until clear of the area.
- If the aircraft is a legitimate “non-participating” aircraft has authority to be within the area, communicate with the aircraft and advise incident aircraft of its presence. If possible, coordinate altitudes and locations. ATGS may request, but not demand, that the aircraft check in with the ATGS as needed. If radio contact is not established:
 - No attempt to drive, guide, or force the intruder from the area should be made. The aerial supervisor must monitor the intruder’s position, altitude, and heading.
 - Try to ascertain the N-number without imposing a hazard.
 - The aerial supervisor must ensure that incident aircraft are informed and kept clear of intruder. This may require removing incident aircraft and curtailing operations for as long as the intruder is considered a potential hazard.
 - Report intruder immediately to local dispatch office and ask them to contact the Air Route Traffic Control Center (ARTCC). The FAA sometimes has the capability of tracking an aircraft or identifying the aircraft.
 - If there is a conflict or intrusion, report it to the appropriate dispatch center. Ask dispatch center to report the intrusion to the local ARTCC.
 - Submit a mishap or SAFECOM report as per agency policy and procedures.

Interagency Operations

Federal Cooperation:

The federal government will not use or pay for non-carded or “unapproved” aircraft on federal lands when the federal government is the “operator” of the aircraft.

- ODF has the right to independently fight fire on federal land if the fire is a threat to lands protected by ODF. Command and control of the aircraft is maintained by ODF, and the interagency aviation operations must be safely integrated.
- ODF has the authority to use ODF aviation policies, procedures, and aircraft on federal land, as outline in the PNWCG Master Cooperative Firefighting Agreement and Operating Plan, whenever ODF is the “Operator of the aircraft”.
- Initial attack aircraft may be non-carded when dispatched under a reciprocal operating plan as outlined in the ODF/USDA Forest Service parent agreement. Federal passengers may not ride on non-carded aircraft.
- On a federal fire, when the federal government is considered the “Operator” of the aircraft, and it is managed by ODF at federal request, all aviation activities must be managed according to federal agency standards. Fire line agreements will be used when necessary to deal with threatened lands protected by ODF.
- Federal employees can only fly on aircraft where both the pilot and the aircraft are federally carded and approved by their agency through a Federal Letter of Approval (LOA). LOAs will be issued to state owned, contracted, and in some cases CWN aircraft. Aircraft under operational control of ODF flying on Federal incidents must have an LOA onboard. LOAs can be found on Microsoft Teams > [Field Resources](#) > Aviation Resources > LOA.
- Federal employees should contact their respective Unit Aviation Officer with questions regarding aircraft approved by their agency.

Oregon State Fire Marshall (OSFM) Cooperation:

- Salem Coordination Center (SCC) will be the point of contact for ordering ODF aviation resources in support of OSFM incidents on unprotected and under protected lands. SCC does not have the ability to monitor statewide radio frequencies so orders will be placed by calling SCC during regular business hours (M-F | 0800-1800) at 503-945-7455 and after hours by contacting the SCC Duty Officer at (503) 559-0511.
- When an order is placed, the SCC will notify the State Aviation Manager, State Aviation Operations Specialist, State Aviation Coordinator, and appropriate Area Aviation Coordinator.
- SCC will work cooperatively with OSFM to ensure Tactical Aircraft Order forms are filled out completely and accurately. With the support of the Aviation Unit, SCC will coordinate ordering the closest available ODF air resources with the hosting dispatch center(s) that meet incident needs. When federal airtankers are ordered SCC will place orders with the Northwest Coordination Center (NWCC).
- Federal aircraft resource orders have more detailed requirements and different prioritization criteria. Important: There is potential for delays in acquiring federal resources until an Incident Resource Ordering Capability (IROC) project is created and a federal P-Code (financial code for payment) is generated.
- When orders are placed and filled, SCC will notify OSFM of the resource tail numbers or tanker numbers and the expected time of arrival to the incident.
- The host dispatch center will conduct flight following when the aircraft is not communicating directly with the incident.

For more information concerning interagency operations, contact the assigned Area Aviation Coordinator or State Aviation Operations Specialist.

Environmental Consideration and Concern

Due to the implementation of avoidance areas and maps by the USDA Forest Service, federal airtankers and leads may inquire about avoidance areas prior to dropping on ODF fires. ODF does not have any avoidance areas on ODF protected lands, however, ODF will continue to follow the *Environmental Guidelines for Delivery of Retardant or Foam near Waterways* (see below). Avoidance areas can be viewed using Vantage for federal lands.

Environmental Guidelines for Delivery of Retardant or Foam near Waterways: Do not apply retardant or foam directly to any waterway. Do not apply aerial application of retardant or foam within 300 feet of waterways. These guidelines do not require the pilot in command to fly in such a way as to endanger their aircraft, other aircraft structures, or compromise ground personnel safety.

Exceptions for Delivery of Retardant or Foam near Waterways: When alternative line construction tactics are not available due to terrain constraints, congested areas, life and property concerns, or lack of ground personnel, it is acceptable to anchor the foam or retardant application to the waterway. When anchoring a retardant or foam line to a waterway, use the most accurate method of delivery to minimize placement of retardant or foam in the waterway (a helicopter rather than a heavy airtanker).

Deviation from these retardant/foam guidelines is acceptable when life or property is threatened, and the use of retardant can reasonably be expected to alleviate the threat. When potential damage to natural resources outweighs possible public loss of aquatic life, the District Forester or designated representative may approve deviation from these retardant/foam guidelines. If a deviation is approved, the District Forester must notify the Aviation Unit within 72 hours.

Other Environmental Guidance: For information and guidance on how to prevent the transport of invasive species see the [NWCG, PMS 444, Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations](#).

Fire Suppression Chemicals

Long-Term Fire Retardant

Long-term fire retardants contain fertilizer salts that change the way fuels burn. They are effective even after the water has evaporated. Retardants may be applied aerially by large airtankers, SEATs, and helicopter buckets. Some retardant products are approved for fixed tank helicopters. Some products are formulated specifically for delivery from the ground. See the Qualified Products List (QPL) for specific uses for each product at https://www.fs.usda.gov/rm/fire/wfcs/documents/2022-1208_qpl_ret.pdf

Recommended coverage levels and guidelines for use can be found in the IRPG (PMS 461). Retardant mixing, blending, testing, and sampling requirements can be found at the WFCS website Lot Acceptance and Quality Assurance page <https://www.fs.usda.gov/rm/fire/wfcs/lot-acceptance-and-quality-assurance-program.php>.

Water Enhancer (Gel)

Water enhancers, including firefighting gels and elastomers, are added to water to improve drop characteristics and adhesion of water to fuel. They are not effective once the water has evaporated. These products may be used in structure protection within the wildland urban interface or on wildland fuels. Mixing water enhancers outside of their qualified mix ratios is not acceptable. They are fully approved for use in helicopter buckets and engine applications. Some products are approved for use in SEAT and fixed-tank helicopters at specific mix ratios. See the QPL for specific uses for each product:

https://www.fs.usda.gov/rm/fire/wfcs/documents/2020-1005_qpl_WE.pdf

Suppression Chemical Aerial Application Safety

- Personnel and equipment in the flight path of intended aerial drops should move to a location that will decrease the possibility of being hit with a drop.

- Personnel near aerial drops should be alert for objects (tree limbs, rocks, etc.) that the drop could dislodge. The IRPG provides additional safety information for personnel in drop areas.
- During training or briefings, inform all fire personnel of environmental guidelines and requirements for fire chemical application and avoid contact with waterways.
- Avoid dipping from rivers or lakes with a helicopter bucket containing residual fire chemicals without first cleaning/washing down the bucket.
- Consider setting up an adjacent reload site with fire chemicals in portable tanks or terminate the use of chemicals for that application.
- In specific cases, aircraft that dispense water enhancers may be asked to do a decontamination process to minimize the risk to sensitive aquatic environments.

Fixed-Wing Operations (non-airtanker)

The agency utilizes a variety of fixed-wing aircraft to support both fire and natural resource missions.

Air Attack and Reconnaissance Missions

Air Attack (Air Tactical Group Supervisor, ATGS) is a person who can be in a fixed wing aircraft (e.g., Cessna 182), or rotary-wing aircraft (e.g., Hughes 500e). The role of the ATGS is the safe coordination of fixed and/or rotary-wing aircraft operations over an incident.

The Helicopter Coordinator (HLCO) coordinates helicopter mission(s) and incident airspace, manages incident air traffic, and is the link between ground personnel and incident aircraft. A HLCO is the first step in the aerial supervision qualifications.

The difference between reconnaissance and air attack aircraft is that the air attack aircraft has a qualified ATGS on the aircraft. The reconnaissance aircraft may have an aerial observer on board. The role of recon aircraft is to grid an area that has either been involved in a lightning storm or has been determined to be of a high risk for fire and the accessibility is such that aircraft reconnaissance is the most effective tool.

Natural resource survey flights, such as the ODF/USFS Cooperative Forest Health Survey, can also provide fire reconnaissance during their missions.

Ordering

Dispatch should brief ATGS. Include a listing of all aircraft over the incident and ordered for the incident, with tail numbers and/or call signs. Also, double-check the air-to-air, air-to-ground frequencies, and flight following procedures. **Once over the scene, the ATGS will assume command of all the air resources.** Coordination between the Incident Commander and dispatch for arrivals and releases of aircraft, as well as determining additional needs are also the responsibility of ATGS.

ATGS/Recon should be identified over the incident as:

- Incident name air attack/recon. (e.g., Wolf Creek Air Attack, or Wolf Creek Recon. This is the federal standard and should be the first choice).
- Air attack (e.g., when no interference with other AA) Air Attack + tail number of aircraft (e.g., Air Attack 75 Uniform).

Lead Planes and Aerial Supervision Modules

Lead Plane: Aircraft with pilot used to make trial runs over the target area to check wind, smoke conditions, topography, and to lead airtankers to targets and supervise their drops.

Aerial Supervision Module: A fixed-wing aircraft with a pilot and ATGS on board as a dedicated module. The ATGS deals with fire suppression tactics, and the pilot acts as air traffic control. This module may also take the place of the Lead Plane.

Ordering

A Lead Plane will be ordered whenever a large airtanker is ordered. If the lead plane is unavailable or if it will arrive after the airtanker, and the airtanker pilot is initial attack qualified, the airtanker can fly the mission without the lead plane on-scene. The use of a lead plane increases the effectiveness, economy, and safety of airtanker operations.

Note: The majority of airtanker pilots are initial attack qualified. If an airtanker does not have an initial attack qualified pilot, the Airtanker Base Manager coordinates with the PNW-Region 6 to assure a lead plane is staged nearby to respond with the airtanker.

How to Order: Lead planes are normally based at the same locations as airtankers. There are only a few lead planes in the Pacific Northwest and at times can be difficult to obtain. When placing the order, identify the priority of the request.

Multi-Mission Aircraft (MMA)

The ODF MMA (N9000V) is a twin-engine Partenavia Observer (P-68). It is an aircraft capable of Instrument Flight Rules (IFR) with a service ceiling of approximately 18,000 feet. Cruise speed is 130 knots. The aircraft is equipped with a sensor array and associated software that was originally designed to be used by U.S. Military Forces. This system is adapted for use in wildland fire and other all-hazard events to allow for video and still image capture, as well as the creation of other vector products. A typical mission duration is four to six hours.

The MMA utilizes a FLIR SAFIRE© 380-HD sensor ball that contains three cameras: Mid-wave Infrared (heat), short-wave Infrared (super-visible light), and electro-optical (visible color). By utilizing these cameras, the operators can detect heat sources from many miles away and can gain and share situational awareness to ground forces and IMTs. The cameras are linked to an augmented reality mapping system that allows operators to create approximate fire perimeters and point data for things such as new fires, spot fires, access, and structures. All vector data can be transmitted to the ground in the form of KML (Google Earth) files, JPEG photos, and MP4 videos.

The aircraft and crew are available on a standard 14-hour duty day with an eight-hour flight limit time for pilots.

Ferry Flight Times

- Salem to La Grande - 1 hour and 45 minutes
- Salem to Lakeview - 1 hour and 30 minutes
- Salem to Medford - 1 hour

Detection Flight Ordering

- The aircraft is hosted by the Salem Coordination Center (OR-ORC).
- The aircraft and crew are ordered through IROC as an “Infrared Flight”.
- Requesting District/Unit will initiate a Severity Request (see Severity Guidebook)
- When the request is related to an expected lightning event, the Aviation Unit requests orders 72 hours prior to the event. This allows time to adjust pilot and crew schedules to accommodate the mission.
- Upon Severity Request approval, ordering dispatch will complete the ODF MMA Tactical Aircraft Resource Order and send to SCC at sccgroup@odf.oregon.gov.
- The ordering district/unit will complete the ODF MMA Mission Planning Survey on AGOL and provide a contact name and any pertinent information.
- Requestor will make a courtesy phone call to SCC Aircraft Desk at (503) 945-7455 to ensure the TARO is received and is routed to the Chief Pilot.
- Mission crew will reach out to the identified contact person at the district/unit and ask any follow-up questions or clarifications on mission expectations. Pertinent information/shapefiles/perimeters can be exchanged via Microsoft TEAMS or email during this discussion. ODFCloud can be used as a backup exchange for larger files. During high fire load times, a representative from the ordering district will attend the afternoon coordination meeting. An invitation will be sent by a member of the Aviation Unit when these meetings are being held.

Note: The aircraft is stationed in Redmond (primary) or Salem (secondary) during fire season.

“Other” Mission Ordering

- The aircraft and crew are ordered through IROC as an “Infrared Flight”.
- Ordering dispatch will complete the ODF MMA Tactical Resource Order (TARO) and send it to sccgroup@odf.oregon.gov.
- Requestor will make a courtesy call to the SCC Aircraft desk at (503)945-7455 to ensure the TARO was received and routed to the Chief Pilot.

MMA Dispatch Priorities

1. Imminent threat to human life, on any jurisdiction
2. Detection flights
3. Initial Attack
4. Large Fire Support

Communications

The aircraft is equipped with three programmable VHF-FM radios, two VHF-AM radios, and an 800 MHz radio. Additionally, the on board internet allows for internet connectivity in many locations when the aircraft is above 10,000 feet. This allows the crew to deliver photos, videos, and vector products to the ground in near real-time. Cellular connectivity and signal strength are the constraining factors, as coverage varies throughout the state.

Fire Missions

The MMA typically operates at 10,000 feet AGL. This is well above the Fire Traffic Area (FTA) and Temporary Flight Restriction (TFR) established on most fire incidents. This allows the MMA to operate without interfering with the tactical firefighting aircraft that are operating within the FTA.

The MMA can conduct ATGS mission if the personnel are available, and the aircraft is not previously assigned to other missions. There are ATGS-qualified operators within the program, but the mission needs to be requested and organized well in advance. The best use of the MMA in an aerial supervision role is normally initial attack or relief when a dedicated air attack is not available. When working in the ATGS role, the MMA will operate within the FTA at typical air attack altitude.

When operating the camera system, the aircraft will be flying between 80 and 120 knots at anywhere between 5,000 and 10,000 feet AGL. Environmental factors such as weather and terrain play an important role in aircraft altitude and operating speed. The infrared camera can see through smoke, **but not clouds**. The MMA is highly effective at night using night-vision (NVG) systems. This allows the pilot and crew members to see at night. NVG systems coupled with the FLIR camera provides an enhanced ability to detect not only heat sources, but the smallest of light sources from active flames.

Accounts Needed for MMA Users (Fire Missions)

User accounts should be requested and confirmed prior to ordering the MMA. The following are the accounts needed for effective and efficient data transfer and should be obtained well in advance of fire season:

- ARCGIS Online (AGOL) - an AGOL account is necessary to complete the ODF MMA Mission Planning Survey. If you are with an ODF, Forest Patrol Protective Association, or Rangeland Protection Association partnered with ODF, go to <https://oregon-department-of-forestry-geo.hub.arcgis.com/nd> click on "ArcGIS Online Login Request" to request and AGOL account if one is needed.
- State of Oregon Fire Situation Analyst (SOFSA) - provided sufficient cellular service is available, the MMA crew will upload deliverables in near real-time into Intterra's SOFSA tool. An authorized user account is necessary for access to SOFSA prior to the mission to benefit from this near real-time workflow. Visit <https://www.oregon.gov/odf/fire/Pages/contact-sofsa.aspx> to request a SOFSA account.
- ODF Cloud - if there is a locally sourced Avenza or GPS track of a fire perimeter involved in the mission objectives, the most efficient way to provide that information to the MMA crew is by using ODF Cloud to upload the known perimeter data. Access to ODF Cloud is necessary for mission planning purposes. Please visit <https://odfit.freshservice.com/helpdesk/>. Click "Report an Issue" to submit a ticket requesting ODFCloud access.
- Cooperator Access-Access to AGOL, SOFSA, and ODF Cloud are available to cooperators who are external to ODF. Please coordinate this access well in advance of the mission. Contact ODF's Information Technology Helpdesk to request access for external cooperators for any or all mission planning systems.

Specific details on using these systems to order the MMA can be found in the ODF MMA Resource Ordering Guide.

Insect and Disease (I&D) Survey Missions

The agency recognizes that I&D Survey flights and fire aviation operations are both very important to the Department. The following key principles apply to I&D survey missions:

- Safe operations are of the utmost importance.
- Reduced workload for the Initial Attack dispatchers and pilots, related to flight following, can result in safer and more productive operations. The general principle is to limit the circumstances when fire dispatch centers would need to flight follow I&D survey flights.
- Flight following is a key component of locating and conducting rescue operations should an aviation accident occur.
- Both Automated Flight Following (AFF) and Radio Flight Following (RFF) are acceptable procedures.
- Airspace deconfliction is important in and around a fire incident area, especially during IA/extended attack.
- Ongoing and meaningful communications among the parties involved is the key to establishing and maintaining productive solutions.
- For I&D flights, in addition to “normal” general aviation and fire related procedures, the following approach will be used.
 - I&D pilot/observer will contact appropriate dispatch centers in areas where they plan to conduct flight operations, and let them know of their plans, confirm frequencies, etc.
 - Pilot will arrange for Flight Following to occur through SCC (preferred) or a district dispatch office in the survey area. If AFF is not available, or fails, revert to RFF.
 - As aircraft enters a dispatch center’s coverage area for a significant time (+15 minutes), radio contact will be made with the dispatch center and will give them their survey plans, as well as how they are being flight followed. Dispatch will notify the aircraft of any ongoing/planned aviation activities in the area.
 - Pilot will monitor the appropriate dispatch center frequency while in the district.
 - Pilot will establish and maintain radio communications with other agency aircraft in the planned flight area.
 - When leaving a dispatch center coverage area, radio contact will be made notifying the center that the aircraft is leaving the area.
 - **I&D flights will not leave their intended survey flight route for smoke investigations without notifying the appropriate dispatch center. This will allow the dispatch center to assess the need for the deviation, as well as to inform them of any other aircraft in the area.**

During heavy fire aviation activity (primarily multiple aircraft IA/extended attack activities), I&D survey should be diverted outside of the fire activity areas on the district, or as needed outside the district to reduce potential conflicts. It is acceptable to conduct a survey on a district with fire activity after the busy initial stages, when activity has returned to a more planned, predictable operation, or if outside the fire traffic area. Fire patrol observers will inform fire patrol pilots of the need and expectation for them to communicate with the I&D pilot as needed when sharing the airspace.

I&D aircraft should make every effort to avoid TFR areas, however, if operations must occur near or in an active TFR, the I&D flight manager must coordinate with the TFR owner prior to flight operations. This

deconfliction call serves as a mechanism to time entry and time spent in or around the TFR to minimize conflict and time flights in a way that works for both parties.

Safety Around Airplanes (applicable to all fixed-wing operations)

- Approach and depart in view of the pilot, only when engine and propeller(s) have come to a complete stop.
- With multi-engine aircraft, it is required that all engines on the passenger door side be shut down during boarding and exiting. If cargo must be unloaded, all aircraft engines shall be shutdown.
- Cabin door in front of wing-walk to the front avoiding the propeller area, never under wing.
- Cabin door below or behind wing-walk behind wing, then toward door and avoid walking under the wing.
- When entering and exiting, use designated steps or wing walkways. Do not step where “no step” is indicated.
- Use door latches as instructed.
- Secure loose items in the aircraft.
- Provide the pilot with accurate weights of passengers and cargo.
- During refueling, passengers shall be out of aircraft and at least 50’ away.
- No smoking within 50’ of aircraft.

Airtanker Operations

Airtanker Types and Capabilities

| Type | Retardant/Water Capacity (gal) | Aircraft Examples |
|------|--------------------------------|---------------------------------|
| 1 | 3,000+ | DC10, DC7, MD87, C130Q, Bae-146 |
| 2 | 1,800-2,999 | Q-400 |
| 3 | 600-1,799 | AT802, PV2, S2 |
| 4 | 100-599 | Ag Cat, Turbine Thrush |

Minimum Staffing Levels

All ODF fire aviation operations **will** comply with the following standards or not fly the mission. Only qualified personnel or authorized trainees will supervise operations involving aircraft. Qualifications are outlined in the Air Operations Policy, ODF Protection Training and Certification Manual, Chapter 6.

NOTE: Operations involving more than three aircraft, or mixture of airtankers and rotary-wing aircraft over the incident, will be supervised by a qualified ATGS.

Single-Engine Airtankers (SEATS), Fire Bosses, and Ag Tankers: To ensure adherence to contract specifications, safety requirements, and fiscal accountability, a qualified SEAT Manager (SEMG) or Large Airtanker Base Manager (ATBM) must be assigned to each operating location. If a qualified SEMG or ATBM is unavailable, authorized trainees may manage the aircraft. The aircraft will not be flown on federal incidents without a fully qualified manager. The host dispatch must be made aware of the situation and all dispatches must be for ODF protected lands only. All permanent, CWN, and temporary bases will have a SEAT Base Operations Plan prior to operations out of the SEAT base airport.

Large Airtanker: All permanent, CWN, and temporary bases will have an Airtanker Base Operations Plan and a qualified Airtanker Base Manager (ATBM) prior to operations out of the airtanker base airport.

Single Engine Airtanker (SEAT) Operations

The Single Engine Airtanker Operations Guide (ISOG) and other applicable federal documents are considered guidance for ODF SEAT Operations.

Ordering

Incident:

- Incident communicates resource order to local dispatch (incident host).

Incident Host Dispatch:

- Each resource will be ordered with a TARO and will be assigned a unique "A" number in IROC.
- Prepare the TARO with incident information. Please ensure ODF and/or federal priorities are included in the comments section.
- Email the TARO to aircraft's host dispatch center (if a dispatch neighbor) or send to SCC for routing.
- Call the host dispatch or SCC to verify the TARO was received.
- Place an IROC order to the aircraft's host dispatch center (for dispatch neighbors) or place to SCC for routing and fill.
- Release SEAT(s) in a timely manner in IROC back to their preposition when mission is complete.

Aircraft Host Dispatch:

- Notifies SEAT manager of dispatch and routes TARO for aircraft launch.
- Fills the IROC order and sends copy to the SEAT manager.
- Provides flight following services for the SEATs.

SEAT Manager:

- Receives and reviews the TARO form for required information.
- Makes follow-up calls to incident host dispatch or SCC as necessary to clarify information on TARO prior to launch.
- Launches the aircraft and notifies the incident host dispatch with the estimated time of departure (ETD) of the aircraft.
- Coordinates with closest reload base or temporary base for load and returns, holds, etc. In the even SEATs will be reloading at a base not staffed fulltime, SCC will coordinate with the district hosting the SEAT base for support and staffing.

Salem Coordination Center:

- Processes IROC order for the SEAT(s) and emails to the aircraft's host dispatch center.
- Courtesy call to aircraft's host dispatch when routing TARO and IROC order.
- Receives and places IROC orders and IAAO form for Federal SEAT(s) to NWCC.
- Ensures resources are released back to the designated preposition in IROC.
- For dispatch requests to multiple fires, SCC will have the incidents prioritized by either the State Aviation Manager, Fire Operations Manager, or the Division/Deputy Chief of Protection to ensure the appropriate resources are dispatched to the appropriate fire.
- Coordinates with the State Aviation Manager and Fire Operations Manager to prioritize orders when multiple fires have requested the large airtanker.

SEAT Pilot Card Ratings

All SEAT pilots shall be rated and carded as either Level I or Level II based on the following criteria:

Level I: Level I rated pilot is qualified to perform SEAT missions during all complexities of fire aviation operations, with or without the benefit of aerial supervision. This encompasses all missions from initial attack through the complex large fire aerial operations. The Level I rated pilot will be familiar with and have experience in complex aerial fire suppression methods, and therefore will be more effective in those types of situations.

Level II: Level II permits pilot performance of missions without the benefit of aerial supervision in the fire environment airspace with the SEAT plus one (1) other aircraft. With more than two aircraft on-scene, aerial supervision for the Level II pilot is required.

SEAT Operations from Large Airtanker Bases

During operations from large airtanker bases, the SEMG will coordinate with the air tanker base manager regarding any separate loading and refueling areas or procedures if SEAT loading is required to be separate from large airtanker retardant loading operations. If the SEAT is being loaded from established pits, the manager will coordinate with the airtanker base manager to ensure the proper segregation from large aircraft is maintained.

Flights of SEATs

Flights of aircraft are comprised of two or more SEATs or scoopers of the same make and model near one another operating with a common objective. There must be enough distance between the aircraft to allow Aerial Supervision to convey updated directions to the airtanker considering the preceding drop or a change in objectives. The trailing aircraft are responsible for separation between their aircraft and the aircraft they are following.

The lead aircraft in the flight will be primarily responsible for communication. During the initial transmission to the FTA, the lead aircraft will identify their airtanker number followed by the term "flight of" and then the total

number of aircraft in the flight. Following this transmission, the number two aircraft in the flight will identify themselves by call sign and “number two” and so forth.

Limitations

As single engine aircraft, SEAT operations are limited to flight during the official daylight hour. Daylight hours are defined as 30 minutes prior to official sunrise until 30 minutes after official sunset (local time), and under visual flight rules. Caution must be taken in mountainous or hilly terrain. One might experience late dawn or early dusk conditions based on terrain features and sun angle, and flight periods should be adjusted accordingly. Daylight hours may further be limited at the discretion of the pilot, aviation manager, ATGS, or Lead Plane because of low visibility conditions caused by smoke and/or shadows.

Proficiency Flights

During periods of low activity, the using agency should consider allowing flight time if there has been no flight time during a seven (7) day period. Proficiency flights should be conducted as an overall training exercise for all aspects of the SEAT operations including dispatch procedures, loading operations, ramp management, and flight following communications. When possible, proficiency flights should be coordinated with local units to ensure opportunities for training with ground resources are offered.

SEAT Jettison Areas

At any time, other than required by emergency, SEATs are not to land loaded. The ordering agency is responsible for designating jettison areas for all SEAT bases. The location of the jettison area will be relayed to the SEMG and the vendor.

| Base Name | Jettison Latitude | Jettison Longitude | Jettison Notes |
|------------|-------------------|--------------------|----------------------|
| Dallesport | 45 37.1800 | 121 09.9600 | Runway triangle area |
| John Day | 44 18.3500 | 119 06.500 | |
| La Grande | 45 28.00 | 118 13.000 | |
| Prineville | 44 32.8 | 120 50.0 | North of Awbrey Mt |
| Roseburg | 43 27.470 | 123 22.110 | |

SEAT Operations from Airports and Airstrips

The best utilization of SEATs requires that they be placed close to the incident. This may best be accomplished by placing the SEAT operation at the nearest airport or airstrip. Coordination with the local airport manager or owner of the airstrip is crucial to the safe and efficient operation of this resource. It is the responsibility of the local aviation manager along with the SEMG to establish a working relationship with the airport manager. ODF Procurement will work with the SEMG, local aviation manager, and the airport/airstrip owner to ensure the appropriate land use and rental agreements have been completed prior to use. The SEMG is responsible for the setup and day-to-day operation of the SEAT base. SEATs may reload out of an established Seat Base without the presence of an SEMG providing the following requirements are met:

- SEMG and support personnel are enroute to the base
- SEAT must always have a direct communication link with the dispatch center
- Hot loading the aircraft will not be permitted
- No more than three (3) SEATs are using the site to reload
- No more than one (1) SEAT is allowed in the pit area at a time

SEAT Bases Managed by ODF

ODF has five SEAT reload bases in Oregon:

- La Grande Tanker Base-utilizes large airtanker base hosted by Wallowa-Whitman National Forest, located in La Grande, OR and dispatched through Blue Mountain Interagency Dispatch Center (59973 Downs Road, La Grande)

- John Day SEAT Base- ODF base, dispatched through John Day Interagency Dispatch Center (730 Airport Road, John Day)
- Prineville SEAT Base- ODF base, dispatched through Central Oregon Interagency Dispatch Center (4585 Airport Way, Prineville)
- Roseburg SEAT Base- ODF base, dispatched through Douglas Dispatch (3896 NW Stewart Pkwy, Roseburg)
- The Dalles Fire Boss/SEAT Base- ODF base, dispatched through Columbia Cascade Interagency Dispatch located at Columbia River Regional Airport in Dallesport, WA (45 Airport Way, Dallesport)

SEAT Operation from Off Airport (Remote) Areas

If it is determined that an off-airport operation is desirable, operations at locations other than airports shall be at the sole discretion of the SEAT vendor/operator. The proper and efficient use of remote landing areas will take pre-planning on the part of the State Aviation Manager, State Aviation Operations Specialist, and Area Aviation Coordinators, along with the vendor, and the SEMG. Always keep in mind that even though a remote landing area is closer to the incident than the established airport or airstrip, it may present logistical support challenges that preclude its efficient use.

Single Engine Scooper (Amphibious SEAT) Operations

The Single Engine Airtanker Operations Guide (ISOG) and other applicable federal documents are considered guidance for ODF SEAT Operations.

Ordering

Same as SEAT Ordering Process.

Considerations When Using Amphibious Aircraft

- When using amphibious aircraft, care must be taken to minimize the potential spread of invasive species.
- Water sources, when limited, should be pre-identified and verified that they meet the Single Engine Scooper Requirements. They should be **ONE MILE IN LENGTH AND AT LEAST SIX FEET DEEP**. Long narrow lakes or lakes surrounded by steep terrain may become unusable if the wind shifts.
- Many of the scoop sites **do not** need to be cleared of boaters or access closed. The time on the water is usually 15 to 20 seconds and the pilots generally have ample perspective, time, room, and maneuverability options to avoid boaters, onlookers, anglers, etc.
- Pilot in Command will determine if a scooping site is feasible and safe.

Water Source Selection

Single Engine Scooper aircraft are capable of being ground-loaded before departure from the home base. Upon receiving dispatch, the flight crews will determine the closest suitable water source. Coordination between the aircraft manager, flight crews, and local dispatch will vary depending on regional water source access protocol. Water source selection may occur enroute depending on the geographic area of operations. Areas of high recreation or restrictive water access should have prior water source coordination set up, and appropriate notifications should be made by the SEAT Manager.

The pilot in command should coordinate the separation with aerial supervision and/or other responding air resources depending on the scenario. If necessary, the transition through or around the FTA to the water source should be approved or coordinated with standard FTA communication protocol.

Upon reaching the water source, the PIC should survey the water and surrounding area for suitability. The PIC should assess winds, water conditions, length, width, depth, terrain, ingress, egress, natural and human-made hazards, recreation, and aquatic invasive species.

Fixed Wing Water Enhancing Gel Procedures

The use of water enhancers mixed using on-board injection mixing systems is permitted on lands protected by ODF.

The use of water enhancers using on-board injection/mixing systems is not permitted on federal lands. The use of water enhancers mixed through a proportioner and loaded from ground-based equipment is acceptable according to their qualified applications as specified on the USFS Qualified Products List (QPL) for water enhancers. Due to the interagency nature of Oregon's wildland firefighting, the first load delivered from the Single Engine Scooper aircraft will be water unless specifically ordered as mixed from the Incident Commander.

Large Airtankers (LAT)

Definition: Fixed-wing aircraft capable of transport and delivery of fire-retardant solutions.

Ordering

Complete an Aircraft Order form. Orders for federal airtankers can be placed directly to local USDA Forest Service or interagency dispatch centers or through SCC. The ODF airtanker is ordered through SCC. Remember to always order a lead plane/ASM when airtankers are ordered.

Ordering Tips: Consider your turnaround time when ordering airtankers. Two airtankers in rotation may be more cost effective. When placing an order, identify the priority of the mission.

Detailed Ordering Process

- Incident communicates resource order to local dispatch (incident host).
- Whenever an airtanker is ordered, an Aerial Supervisor Module (ASM), Lead Plane, or an Air Tactical Group Supervisor will also be ordered.
- **Incident Dispatch:**
 - Each resource will be ordered with a TARO and will be assigned a unique "A" number in IROC.
 - Prepare the TARO with incident information. Please ensure ODF and/or federal priorities are included in the comments section.
 - Email TARO to Salem Coordination Center for routing.
 - Note: at time the airtanker(s) may be temporarily operating out of another location such as Redmond, La Grande, Klamath Falls, or Moses Lake, WA.
 - A phone call will be made from the incident host dispatch office to the SCC to confirm the TARO has been received.
 - Incident host dispatch creates the IROC order and sends it to SCC to be filled and/or placed up.
 - Note: IROC order and a unique "A" number are required when ordering federal lead planes and airtankers.
 - Release Airtanker(s) and Lead Plane orders as soon as the mission is complete or at the end of shift, whichever occurs first.
Note: If Airtanker or Lead Plane is needed for multiple days, they will be released each evening and re-ordered for the next day.
 - **IMPORTANT:** The ODF Large Airtanker may be able land loaded at the discretion of the pilot. Once the aircraft is loaded, the incident that ordered the retardant will pay for the load if the order is canceled and the pilot determines they cannot safely land loaded. This means whether the load is dropped on the fire or in a safe area prior to landing the aircraft. If retardant is ordered, it should be deposited on the fire, if possible, to avoid wasting the load.

- **Salem Coordination Center:**
 - Received and fills IROC orders for the ODF Airtanker emails TARO to the Airtanker Manager or appropriate Air Tanker Base.
 - Receives and places TARO and IROC orders up to NWCC for federal airtankers or lead planes.
 - Checks the status of assigned airtankers to ensure resources are released back to preposition and new orders for the following day have been placed and coordinated as needed.
 - Coordinates with the State Aviation Manager and Fire Operations Manager to prioritize orders when multiple fires have requested the large airtanker.
- **Airtanker Manager:**
 - Receives and reviews the TARO form for required information.
 - Makes follow-up calls to incident host dispatch or SCC as necessary to clarify information on TARO prior to launch.
 - Launches the aircraft and notifies the host dispatch with the estimated time of departure (ETD) of the aircraft.
 - Coordinates with the incident host dispatch for load and returns, holds, etc.
- **Airtanker Host Dispatch Center:**
 - Provides flight following services for the ODF airtanker.

Incident Management Team Ordering

It is critical that the IMT Air Operations Branch Director, Incident Host Dispatch Center, SCC, and Ordering Manager establish an ordering process for Airtankers, SEATs, and Lead Planes for project fires. When the process is established, it will be relayed to the local Airtanker Base Managers and the Salem Coordination Center to assist in clear lines of communication.

Very Large Airtanker (VLAT) Ordering Considerations

Very Large Airtankers (VLAT) are available on the National Call When Needed Contract and ODF emergency Call When Needed list. The ordering process is the same as outlined above with the inclusion of the following:

- When creating an order in IROC, make sure you specify in Special Needs that you are ordering a VLAT fully loaded; otherwise, it will arrive with a half load. (VLAT versus Airtanker Type 1 in IROC)
- The cruising speed of VLATs (like the DC-10) is fast in comparison with some other large airtankers. Dispatchers need to insure when ordering a DC-10, that a lead plane or ASM will arrive in time to direct its operations on the fire and that the available lead platform is suited to direct these missions.
- VLATs are less maneuverable than other airtankers and should be used in less challenging terrain that affords better maneuverability for dispensing.
- The momentum is greater and requires planning by the aerial supervision aircraft to provide a stabilized path for delivery.
- VLATs target higher drop altitudes (250 feet AGL) and are limited to a 200-foot minimum floor.
- Designated reload facilities are Moses Lake, WA, and Medford, OR.

Call When Needed (CWN) Airtankers

The agency does have several airtanker providers on the emergency CWN list. Typically, CWN airtankers are ordered through SCC to ensure there is management available and that coordination occurs with the Airtanker Base that will host the aircraft. Depending on the situation, CWN airtankers can be assigned to an incident (under district control) or to statewide severity (under Protection Division Control).

Federal Airtanker Bases

The USDA Forest Service has five large airtanker bases in the PNW-Region 6 (Washington & Oregon):

- Fremont Winema National Forest, located in Klamath Falls, OR and dispatched through Lakeview Interagency Fire Center (6300 Summers Lane, Klamath Falls)
- Redmond Airtanker Base, located in Redmond, OR and dispatched through Central Oregon Interagency Dispatch Center (1740 SE Ochoco Way, Redmond)
- Wallowa-Whitman National Forest, located in La Grande, OR and dispatched through Blue Mountain Interagency Dispatch Center (59973 Downs Road, La Grande)
- Wenatchee National Forest, located in Moses Lake, WA and dispatched through Central Washington Interagency Communications Center (8868 Turner Road NE, Moses Lake)
- Rogue Siskyou National Forest, located in Medford, OR and dispatched through Rogue Dispatch Center (600 Nebula Way, Medford)

Flight Following

Airtankers usually flight follow with district dispatch when they are close to entering local airspace. Once a lead plane has been established the airtankers will communicate with them except for the flights to and from the incident. Establish flight following procedures with the tanker base to ensure a positive handoff.

SCC's aircraft desk hours will be aligned with the daily large airtanker operating hours. If the airtankers hours are extended by the hosting district, the Airtanker Manager must notify SCC. ODF and interagency dispatch centers that host exclusive use airtankers will ensure adequate aircraft desk staffing to support operations.

Operational Considerations

The following operational practices will be utilized to ensure airtanker operations are conducted with minimal exposure to risk while remaining operationally capable of fighting fire:

- Airtanker operations will comply with the terms and conditions set forth in the aircraft's contract and this manual.
- Low-level airtanker operations are special use missions that place crews and aircraft at higher risk than flying point-to-point. Low level operations will meet the following operational standards.
- Airtanker operations in **non-congested** areas will not require a Lead Plane **if the pilots are initial attack qualified** through the USFS system (within the last 12 months from the contract start date). All pilots flying the ODF Airtanker meet this requirement. The operations can be conducted only if it can be accomplished safely, and no other firefighting aircraft are in the operation area over the incident. Other aircraft working the incident can move out of the incident airspace to a safe area or set down in an area outside of the incident. Airtanker operations in non-congested areas when other firefighting aircraft are present will have ASM/Lead Plane or and Air Tactical Group Supervisor (ATGS) over the incident to provide air traffic control and safety.
- Airtanker operations in **congested areas** will have a Lead Plane/ASM or ATGS on order. The airtankers can make the retardant drop without a Lead Plane if there are no other aircraft in the operation area over the incident, and the drop can be conducted safely. If other aircraft are airborne over the incident, there must be an ASM/Lead Plane or ATGS over the incident for air traffic control and safety. Congested areas are defined for the purposes of this plan, as any location that requires the airtankers to be closer than 500 horizontally and vertically from persons on the ground or multiple structures. (Fire agency personnel that have established positive communications with the airtanker prior to the drop will not be considered a congested area).

Cooperative Use

The aircraft may be used in neighboring states to meet ODF reciprocal agreements. ODF has interagency and cooperative agreements with other State and Federal agencies and may dispatch the aircraft for cooperative use. The ODF large airtanker will be available for initial attack to any agency, anywhere in Oregon if the aircraft is available. ODF may at any time without prior notice recall any aircraft assigned to interagency use, for operations associated with ODF protected lands.

Proficiency Flights

Airtanker operational currency is paramount to assure safe operations. During periods of inactivity when the flight crew has not flown in the previous seven days, a proficiency drop will be conducted (at the cost of the state) in coordination with an agency Lead Plane/ASM or ATGS. The proficiency flight will include the dropping of water on a simulated tactical mission that is approved by the state.

Established Jettison Areas

Large airtanker bases have predesignated jettison areas for emergency offloading of retardant prior to landing. The jettison areas for Region 6 are listed below.

| Base Name | Jettison Latitude | Jettison Longitude | Jettison Notes |
|------------------|--------------------------|---------------------------|--|
| Klamath Falls | 42 35.1500 | 121 31.800 | |
| La Grande | 45 28.000 | 118 13.000 | |
| Medford | 42 13.1400 | 122 53.422 | (On airport jettison 42 22.21 x 122 52.29) |
| Moses Lake | 46 48.0800 | 119 37.3100 | Multiple Jettison Areas available. |
| Redmond | 44 15.000 | 121 07.000 | Secondary: 44 07.00 x |

Helicopter and Helitack Operations Guide (HOG)

Helicopter Types and Capabilities

| Type | Passengers/ Seats | Useful Payload (lbs.) | Retardant/Water Capacity (gal) | Examples |
|------|-------------------|-----------------------|--------------------------------|-----------------------------------|
| 1 | 15+ | 5,000+ | 700+ | Bell 214, S-64, S-61, CH-47, KMax |
| 2 | 9-14 | 2,500-4,999 | 300-699 | Bell 204, Bell 205, Bell 212 |
| 3 | 4-8 | 1,200-2,499 | 100-299 | 206B/L, AS-350, Hughes 500, Lama |
| 4 | 1-3 | 600-1,199 | 75-99 | Bell 47, Hiller 12, Hughes 300 |

The term “useful payload”, as used in the charts refers to the average weight at which agencies would operate the various aircraft.

Helicopter Ordering

Determine the type of mission you have for the aircraft, e.g., bucket work, sling loads, personnel transport, infrared imaging, GIS, air attack, reconnaissance/smoke patrol, etc.

Place a Tactical Aircraft Resource Order (TARO) through the locally assigned dispatch center. The minimum information needed from field personnel to start the order is the type of aircraft needed and mission type. The TARO can be found in Microsoft Teams > Field Resources > Aviation Resources > Forms folder.

Helicopter Operations Management

The following standards indicate the minimum management, staffing, and qualifications necessary for a safe operation. These standards are based on the number of aircraft assigned, types of missions flown, and type of incident involved. They apply to project work, initial attack, extended attack, and project type incidents. Only qualified and trained personnel will supervise operations involving aircraft. More aviation management personnel can be added if needed to maintain safe operations.

Minimum staffing levels

All ODF fire aviation operations **will** comply with the following standards or cease operations until minimum staffing requirements are met. Only qualified personnel will supervise operations involving aircraft. Qualifications are outlined in the Air Operations Policy and the ODF Protection Training and Certification Manual (Chapter 6).

NOTE: Operations involving more than three aircraft, or mixture of airtankers and rotary-wing aircraft over the incident, will be supervised by a qualified ATGS.

- **1-2 helicopters:**

The property qualified person identified in the District Aviation Plan, the dispatcher, or the Incident Commander (defined in the ODF Air Operations Policy)

- **3-4 helicopters:**

Helibase Manager (HEBM) (when helibase has been established)

- **5 or more helicopters:**

- HEBM
- Radio Operator
- ATGS

- **Cargo Transportation:**

- 1 Helicopter Crew Member (HECM) per active operation *can be contract personnel*

- **Crew Transportation:**
 - 1 HECM to load and unload **can be the same person or pilot can shut down the aircraft and perform the task**
- **Type I & II Incident Management Team Assigned:**

During transitions to and from an IMT, refer to Helicopter Operations Management by # of helicopters managed:

 - AOBD
 - ATGS
 - Radio Operator
 - HEBM
- **National Guard:**
 - 1 HMGB per 2 National Guard helicopters, or
 - Aviation Liaison (Liaison is an AGENCY employee with aviation training that is familiar with OPLAN SMOKEY)

Load Calculations

All helicopter flights require a load calculation/performance determination prior to takeoff. This is the pilot's responsibility. Load calculations are to be presented to the ODF aviation manager.

Helicopter Fueling Operations

Rapid refueling: There are TWO APPROVED METHODS (Closed Circuit Refueling and Open Port) for fueling helicopters with the engine(s) running.

- **Closed Circuit Refueling (CCR)-** This method of refueling uses a CCR system designed to prevent spills, minimize fuel containers, and prevents escape of combustible vapors.
- **Open Port (splash fueling)-** This method of refueling allows combustible fuel vapors to escape.

Rapid refueling of helicopters is permitted if requested by the STATE, and the contractor meets the following requirements:

- All passengers are out of the aircraft, and the pilot must remain in and in control of the aircraft.
- Rapid refueling procedures in accordance with the NFPA 407 are contained in the Cooperator's FAA approved Operations Specifications.
- Notwithstanding NFPA 407, a pilot is seated at the controls of the aircraft during refueling operations.
- Personnel providing on-sight fire protection are briefed on the Contractor's rapid refueling procedures.

ODF personnel are not permitted to take part in contractor refueling operations.

Helicopter Landing Area Selection

Choosing and maintaining a landing area:

- Locate a reasonably flat area (with less than 5% slope).
- Choose an area clear of people, vehicles, and obstructions such as trees, poles, and especially overhead wires. The area must be free of stumps, brush, posts, large rocks, or anything over 18 inches high.
- Consider the wind direction. Helicopters land and takeoff into the wind. Choose an approach free of obstructions. Any obstruction shall be relayed to the helicopter pilot on initial radio contact.
- Remove or secure any loose items in and around the landing area such as trash, blankets, hats, or equipment.

- Wet down the landing area if dusty conditions are present.

Fixed Helibases/ Helispots

Fixed Helispot: A natural or improved area used for repetitive takeoffs and landings intended for temporary helicopter use. Can be used for fueling, loading, and unloading of passengers or cargo, and ground to air communications.

Helibase: A temporary or permanent facility for helicopter operations, which includes but is not limited to fueling, maintenance, loading and unloading of passengers, repetitive takeoffs and landings, and ground to air radio communications.

Safety Circle: A safety zone that provides an obstruction-free area on all sides of the touchdown pad. For helispots and helibases, the only items that should be within the safety circle are a fire extinguisher, a pad marker, and if applicable, external, or internal loads awaiting transport. The size of the **minimum** safety circle depends on the size of the helicopter.

Type 1 Helicopters:

- Safety circle 110'
- Touchdown pad 30' x 30' clear and level

Type 2 Helicopters:

- Safety circle 90'
- Touchdown pad 20' x 20' clear and level

Type 3 & 4 Helicopters:

- Safety circle 75'
- Touchdown pad 15' x 15' clear and level

Items needed for fixed helibase/helispot:

- Wind indicator
- Radio compatible with helicopter radio
- Pad marker (recommended for helispots)
- Passenger/cargo manifest book
- Helicopter load calculation book (OAS-67/FS 5700-17)
- Dust abatement (as needed)
- Bulletin board (helibases only)
- Crash rescue kit (helibases only)-will contain a Pulaski, hacksaw with 10 blades, bolt cutters, knife, and pry bar
- **Fire Extinguisher** will be 20 lbs. dry chemical type 40 B:C at all helibases. A minimum of one fire extinguisher provided by the contractor per aircraft shall be available.

Unimproved Landing Sites and Helispots

An unimproved landing site should become a helispot when it is utilized on a recurring basis for the purpose of transporting personnel and/or cargo to or from a site. When used on a recurring basis landing sites should be improved to the extent necessary, managed and supplied with the proper equipment.

To determine when a helispot should be managed as a helibase, use the following criteria:

- For wildfire incidents, a landing site should have required helibase management and controls implemented when three or more helicopters are assigned to or based out of a location for more than one day. Prudent management and safety concerns should naturally dictate that when several

helicopters arrive at a helibase on the first day, helibase management procedures and requirements should be initiated.

- In any operation, if the aircraft are separated (e.g., **refueling, transporting personnel, maintenance**) at different areas, and/or a helibase is not established, a HEBM is not required.
- In an initial attack situation, it is recommended that a Helicopter Manager or Helibase Manager be assigned to manage the aircraft.

Helicopter Landing Area Safety

- Keep bystanders well clear of the helicopter and supervise the safety of personnel working around the helicopter.
- Always get the approval of the pilot before approaching a starting or operating helicopter. Only approach and depart as directed, or downslope, in a slightly crouched position, and in full view of the pilot.
- When approaching or departing, do not hold equipment overhead.
- **Never** approach from or leave uphill. **Always** approach from the downhill or cross-slope side.

Helicopter Safety

The following are safety measures to take when working near helicopters:

- Approach and depart in the pilot's view (never toward the tail rotor).
- Approach and depart on the downhill side or level with the helicopter (to avoid the main rotor).
- Use a chinstrap or carry your hard hat when working around helicopter.
- Carry tools horizontally, below waist level (never upright or over shoulder).
- Fasten seatbelt upon entering the helicopter and leave buckled until pilot signals to exit.
- Fasten your seatbelt behind you before leaving.
- Use door latches as instructed; be cautious around moving parts or plexiglass.
- Keep landing areas clear of loose articles that may blow in the rotor wash.
- Do not throw items from the helicopter unless approved by the pilot.
- Provide wind indicators for takeoff and landings at established helibases.
- Eye and hearing protection shall be worn when working close to helicopters.
- Secure all items on the helicopter. Provide the pilot with accurate weights and types of baggage or cargo being transported.
- No hazardous materials may be carried in the passenger compartment of the helicopter (e.g., gasoline).
- PPE for helicopters is required by department policy. This includes an aviator's helmet or hard hat with chin strap, fire resistant clothing (flight suit or Nomex shirt and pants), leather boots which extend above the ankle, and leather or Nomex gloves.
- All employees riding in rotary wing aircraft performing low level missions must meet the protective clothing and equipment requirements as outlined in Directive 1-2-1-002; 02/00, PN 934 Protective and Equipment for Fire Suppression and Prescribed Burning.

Helicopter Water Enhancing Gel Procedures

The use of water enhancers mixed using on-board injection mixing systems is permitted on lands protected by ODF.

The use of water enhancers using on-board injection/mixing systems is not permitted on federal lands. The use of water enhancers mixed through a proportioner and loaded from ground-based equipment is acceptable according to their qualified applications as specified on the USFS Qualified Products List (QPL) for water

enhancers. Due to the interagency nature of Oregon's wildland firefighting, the first load delivered from the Fire Boss aircraft will be water unless specifically ordered as mixed from the Incident Commander.

Helicopter Maintenance

For personnel transportation or reconnaissance, new or overhauled engines and helicopter transmissions will have accumulated a minimum of five (5) flight hours at the owner's expense before use by ODF. For restricted use aircraft, new or overhauled engines and transmissions will have accumulated one (1) flight hour at the owner's expense before use by ODF.

Helicopter Night Operations

Dual-piloted, Type 1 helicopters may be approved for mission flight at night under night vision goggles. The State Aviation Manager, State Aviation Operations Specialist, or State Aviation Coordinator must approve all night missions prior to flight. Longline missions will not be approved. Only belly hook or fixed tank missions will be approved.

Pre-designated ODF personnel must act in key positions such as helicopter manager, helibase manager, and dip site manager (as needed for each mission).

For more detailed information, including criteria for night missions, please refer to the ODF Dual-Piloted Helicopter Night Operating Guidelines document.

Helitack Operations

Fire Management Activities

The majority of helicopter flight time for the helitack platform and crew is generated for fire management purposes. This includes initial attack, logistical support of wildfires, and transportation of personnel. Field training and "live" practical exercises which simulate fire operations are also routinely practiced in maintaining qualifications and fire preparedness for pilots, crew members, and other fire crews.

Resource Management & Administration

Helicopters may be used to support resource management projects. These projects vary widely but include activities such as department staff reconnaissance, radio repeater maintenance, and transportation of personnel. This use will be through prior approval from the State Aviation Manager, Unit Forester, and Wildland Fire Supervisor, and will occur only if suppression activities will not be affected.

Helitack Supervisor/Helicopter Manager Roles and Responsibilities

- Works under the supervision of the designated Wildland Fire Supervisor. Holds IQS qualifications as specified in the NSHO (Chapter 2) for HMGB and WFQS 310-1 Incident Commander Type 4.
- Provides helicopter contract oversight under the direction of the State Aviation Coordinator and acts as the designated inspector.
- Plans and coordinates training and proficiency flights for all personnel.
- Assists with helitack crewmember recruitment.
- Supervises the helitack organization and assigned crewmembers.
- Occupies the forward left seat of the aircraft and is tasked with the duties associated with that position (see seat position duties). A helicopter manager trainee that is qualified as ICT5 may serve in this position if the helitack manager is monitoring the movement of the helicopter and crew or is with the chase crew.
- Maintains the responsibilities of incident commander when first to arrive on scene of initial attack incidents, until relieved by subsequent resources.
- Conducts day-to-day administration of exclusive use contacts of co-located aircraft.
- Conducts helicopter operations according to this document and the ODF Aviation Policy.

- Reviews flight hazard maps and helicopter/helibase operations plans with module members and all contract personnel.
- Brief pilots and/or helicopter managers concerning local operational procedures, safety concerns, mission requirements, and local hazards.

IQS Qualifications:

- Meet requirements as outlined in Wildland Fire Qualifications Guide (WFQG) 310-1
- Helicopter Manager
- ICT4

Helitack Assistant Supervisor Roles and Responsibilities

The squad leader is actively involved with the training and management of the helitack crew. They lead the crew in fire management and project related activities. They provide various helibase, helispot, and helicopter management duties. The assistant assumes the duties of the Helitack Supervisor in their absence. The squad leader directly supervises the crew in the absence of the Supervisor.

IQS Qualifications:

- Helicopter Crewmember
- Firefighter Type 1
- ICT5
- Helicopter Manager Trainee

Helicopter/Helitack Crewmember Roles and Responsibilities

Crew members perform fire management and project related duties. They are directly involved with helicopter operations. They are responsible for the safe and efficient transport of personnel and cargo. As primary firefighters they are tasked with the multiple phases of fire suppression; initial attack, extended attack, mop-up, and monitoring as directed.

IQS Qualifications

- Meet or seek to acquire above-listed requirements as outlined in WFQG 310-1
- Firefighter Type 2
- S-270/271 Helicopter Crewmember/ or Trainee w/open task book/ or successful completion of annual Helicopter Crewmember training (w/live exercise), HECM

Helitack Contract Air Crew Roles and Responsibilities

The contract pilot, mechanic, fueler, and other vendor crewmembers are an integral part of the helibase crew. The Pilot in Command (PIC) is ultimately responsible for the safe operation of their aircraft, its occupants, and cargo. The PIC responsibilities are outlined in the helicopter contract. All vendor personnel are provided an orientation and safety briefings before becoming operational. Vendor personnel will also complete fire shelter training annually, ensuring efficient deployment and use of their fire shelter. Contract pilots and crew are an initial attack resource and are expected to respond in the time frames addressed in their contract.

Daily Briefings

Each morning, a briefing will be conducted. The briefing will include a daily national situation report, current fire weather forecasts, a safety discussion, and work assignments.

Physical Training

The helitack crew is required to participate in physical training for at least one (1) hour each day, except with the needs of any incident, resource order, or project intercede. During PT time the crew shall be available for recall by cell phone or radio.

Staffing and Procedures

Standard crew complement during contract availability period will be one (1) helicopter manager, one (1) incident commander, and one (1) firefighter onboard the helicopter. The IC and firefighter will be prepared to work 36 hours without further support. Standard procedure will be that a manager and at least two crewmembers will be with the helicopter, with the manager and pilot available to return to base separately for response to additional missions as needed. Variations to the standard compliment will be based on the operational requirements of the incident or project, and in coordination with the ordering duty officer.

Initial Attack Readiness

Daily, at the start of each shift, the on-duty helicopter manager or their designee will assure that the pilot and aircraft have posted the current load calculation. Additionally, the helitack crew and cargo will be maintained in a state of readiness for rapid deployment for initial attack missions. Required PPE (clothing and boots) will be worn by the flight crew and required in-flight PPE (flight helmets and flight gloves) are ready in the aircraft.

The time between initial dispatch and lift-off should not exceed 20 minutes (unless vital flight planning information for the mission has not been acquired from dispatch or pilot's pre-flight checklist is not completed). Unless flight destination, radio frequencies, ground contacts, and other aircraft are known and verified, the flight crew must receive an *Aircraft Resource Order* prior to lift-off. The manager and/or duty officer should also contact the airbase manager at the beginning of each shift with an aircraft status and manifest report. A helicopter manager's kit (knee board) and map kit are maintained for the manager, and shall travel with the helicopter, chase vehicle, or designated manager at all times.

Initial Attack and Incident Support Missions

As standard protocol, a qualified Helicopter Manager (HMGB), Incident Commander Type 4 (ICT4), and Helicopter Crewmember (HECM), will accompany all initial attack flights to fires. NSHO Chapter 2 specifies that an HMGB will also be onboard the aircraft on the first flight into any new or unimproved helispot. However, at the HMGB's discretion, or when training crewmembers towards helitack overhead positions, the HMGB may designate inflight IA duties to a qualified HMGB-Trainee, a squad leader, or a senior firefighter-PROVIDED THEY HOLD A MINIMUM OF BOTH HECM AND ICT5 QUALS. Delegating inflight IA duties to lessor qualified, minimally experienced helicopter crewmembers will be avoided.

Important Note: The pilot's decisions and judgements are final. No agency employee shall explicitly or implicitly ask or require a pilot to perform any mission or flight maneuver which in the judgement of the pilot, compromises flight safety. This includes the pilot's preference for how the helicopter is staffed, configured, and/or personnel permitted onboard the aircraft.

Helicopter Configuration

Configuration of the helicopter, staffing, tools, and equipment can vary considerably to meet the needs of the incident or project. Helicopter performance limits the types and amount of equipment that can be carried onboard the aircraft. Normally performance limits will not permit all the equipment to meet the needs of every situation.

Standard Configuration:

- IA packs
- Fire tools
- Chainsaw and fuel
- Bambi Bucket
- If performance limits allow, overnight packs and extra water
- Longline and remote hook shall be carried with the fuel truck unless needed onboard for the immediate mission

Helitack Seat Assignments and Corresponding Tasks and Responsibilities

Individual seat assignments in the helicopter have specific duties and tasks for that position. Crew members will be trained, practice, and become proficient at these tasks and responsibilities on a routine basis.

Right Front Seat: Pilot (duties as described in NHSO Chapter 2)

Left Front Seat: Manager's position.

- Complete and post load manifests with pilot approval prior to each flight
- Operate FM radios, check-in & confirm flight following with dispatch, provide navigation assistance to pilot via map or GPS
- Observe forward left quarter of the airspace for hazards (other aircraft, birds, wires, etc.)
- Provide incident size-up report to dispatch and assess helispots prior to landing
- Monitor GPS position, advise ETA information to dispatch and/or air attack
- Assess fire traffic area (FTA) with pilot and air attack (if ATGS is assigned)
- Watch for landing hazards for pilots, including rotor clearance, skid placement, pad surface conditions, wires, dust, ground personnel, etc.
- Remove door for pilot and stow in rear seat once vacated
- Attach long-line/bucket shackle to belly hook of helicopter and prompt the release test procedure
- Assist in moving cargo as needed
- Assure flight helmets are bagged and placed back onboard the helicopter
- Establish air-to-ground communications with helicopter pilots
- Supervise crewmembers (HECMs) on incident until released

Left Rear Seat: Helicopter Crewmember

- Exit left side of the aircraft after receiving clearance from the pilot
- Hold the left rear door open for right rear seat passenger and close/secure as needed
- Remove the cargo from the rear cargo hatch
- Remove the Bambi Bucket from the cargo hatch with assistance from right seat HECM
- Move the bucket forward of aircraft and deploy (open) the bucket-secure the bucket cover and cargo prior to lift-off
- Assist in moving cargo as needed
- Assure flight helmets are bagged and placed back on board the helicopter
- Move outside safety circle after seat assignment tasks are completed
- Follow further instructions of the manager
- Brief non-crewmember passengers and assist in loading and unloading, seatbelt checks and adjustment, flight helmet hookup, cargo loading, and door closures
- Assume duties and responsibilities as IC of the incident (unless IC position is already staffed upon arrival)

Right Rear Seat: Helicopter Crewmember

- Exit the left side of the aircraft following clearance from the pilot
- Open and hold the rear cargo hatch for the left rear HECM
- Assist in the removal of the Bambi Bucket with the left rear HECM

- Assist in moving the bucket forward of aircraft and assist in deploying (opening) the bucket
- Carry the long-line shackle to the manager for attaching it to the belly hook
- Prompt release test procedure for bucket or remote hook
- Assure the line is clear of the skids and slack formed into “S” shape for free lifting
- Assist in moving cargo as needed
- Assure flight helmets are bagged and placed back onboard the aircraft
- Move outside the safety circle after seat assignment tasks are complete
- Follow further instructions of the manager
- Brief non-crewmember passengers and assist in loading and unloading, seatbelt checks and adjustment, flight helmet hookup, cargo loading, and door closures

Communications

- Normally, the pilot will monitor and communicate on VHF-AM (Victor air-to-air) frequencies while the HMGB primarily monitors and communicates on the VHF-FM air-to-ground, or area command frequencies.
- All crew members and pilot wearing flight helmets are connected to and have access to the aircraft intercom system. Crewmembers are responsible for instructing and briefing non-crewmember passengers on how to wear flight helmets and use the intercom system. Rear seated HECMs should monitor on-going radio traffic while in flight and yield relevant conversation to priority radio communications. All crewmembers must be trained, familiar, and practice Crew Resource Management (CRM).
- The importance of air-to-ground radio communications cannot be over-stressed. Crewmembers must be adept at monitoring communications, using clear text, and limit airtime to priority traffic. Test handheld radios daily and carry extra battery packs.
- Communication priorities are as follows:
 - Emergency traffic
 - Aircraft flight following
 - New incident reports
 - Dispatching personnel to incidents
 - Equipment ordering
 - Administrative and non-fire communications

Crewmember PPE

A full complement of PPE shall be worn by all passengers for all helicopter flights. Use of PPE will comply with direction contained within the NHSO, IHRG, or Interagency Aerial Ignition Guide as appropriate. All leather boots with “Vibram” soles shall be worn by all passengers and will be the responsibility of the passenger to provide.

Helitack Aerial Ignition Operations

Aerial ignition operations are special category missions and shall comply with the standards and procedures of the Interagency Aerial Ignition Guide.

Helitack Power Trend Analysis

Every 10 hours of flight time, a power assurance check will be completed for each helitack helicopter. The results will be recorded or plotted on a trend analysis graph in the manager’s kit for the helicopter and forwarded to the State Aviation Manager.

Helicopter Natural Resource Management (non-fire) flights

- Pilot and aircraft are identified in the ODF CWN aircraft list, or under an ODF exclusive use contract, and have a valid insurance certificate on file with ODF
- Pilot and aircraft are qualified for the mission
- ODF contact identified and communicated
- Flight plan/resource tracking established- FAA or agency flight plan filed
- Load calculations (Pilot is responsible and must provide to ODF on demand)
- Passenger manifest-list names of all passengers and leave with the entity doing the flight following prior to departure
- Flight following and radio equipment- flight following procedures in place, radio equipment is adequate and operational
- Nature of the mission-pilot will be briefed on nature and sequence of mission
- Geographic area being flown
- Analysis of known hazards-discussed using a flight hazard map for the planned flights or missions below 500' AGL and high-level recon prior to descent to low level below 500' AGL
- Environmental concerns
- On approval of pilot-in-command, hazardous materials can be flown internally on the aircraft. The transportation of hazmat must comply with the Interagency Aviation Transport of Hazardous Materials NFES 1068 Handbook. When the pilot and aircraft have an FAA approved HazMat Certificate, hazmat must be transported in compliance with issued HazMat Certificate. (This certificate can be found online at <https://www.oregon.gov/odf/fire/documents/aviation-hazardous-material-special-permit.pdf>)

Unmanned Aerial Systems (UAS) Operations

These UAS procedures are for use by ODF personnel and other personnel involved in administration, management, and the use of contracted, CWN, and/or ODF owned UAS. 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 the FAA, the State of Oregon, and ODF.

These procedures provide specificity and clarity on the management and use of UAS by ODF. These procedures are not intended to be all-inclusive, but as a supplement to other agency guidelines, FAA regulations, pre-flight safety checklists, and aircraft manufacturer’s approved flight manual.

Coordination

Coordination and direction of UAS operation is provided through the Protection from Fire Division Aviation Unit.

Coordination and direction of ODF owned UAS is provided through the ODF Aviation Unit and the Aviation Working Team.

The State Aviation Coordinator is the agency lead for UAS activities with the field, other divisions, various publics, private persons, and other cooperators involved in UAS activities. The NWOA Area Aviation Coordinator serves as the UAS Program Coordinator and Chief Remote Pilot.

Coordination and direction for information management policies, UAS data collection, storage, security, use, and records retention will be provided through the agency Information Technology staff.

Options for Authorized Flight

There are currently two (2) options available to government entities to legally operate small UAS (less than 55 lbs.).

1. Follow the FAA Small Unmanned Aircraft, 14 CFR Part 107

-or-

2. Obtain a blanket agency FAA Certificate of Waiver or Authorization (COA). Information on applying for a COA can be found on the FAA website.

- a. All operational or airspace waivers must be coordinated by the ODF Aviation Unit.
- b. Operating under this option allows the agency to apply for Emergency COA to operate outside of the FAA 14 CFR, Part 107. (**Example: Beyond visual line of sight**).

To fly an unmanned aircraft that exceeds the maximum weight limit or if the mission includes a non-waiverable rule, the agency may apply for an exemption under the [Special Authority for Certain Unmanned Systems, 49 U.S.C. §44807](#) or complete the FAA’s [Certification](#) process.

Remote Pilot Requirements

A remote pilot must hold a current and valid FAA Remote Pilot Certificate and valid driver’s license. Pilots will maintain currency and adhere to the duty and flight limitations outlined in the Air Operations Policy (14-hour duty day / max 8 hours of flight). For detailed Remote Pilot application requirements and helpful resources for becoming a Remote Pilot, please visit the FAA’s UAS website.

Registration Requirements for UAS

All aircraft must be registered with the FAA online at [FAADroneZone Access - Home](#). All new aircraft registrations and recurring aircraft registrations must be routed to and completed by the Aviation Unit under the agency’s account. Districts/Units needing FAA registration(s) for UAS will contact the NWOA Area Aviation Coordinator.

Agency owned aircraft must all be registered with the Oregon Department of Aviation.

Personally Owned UAS

Personally owned UAS or model aircraft will not be used by ODF or their employees for agency business.

Operational Rules

Remote pilots are responsible for knowing **ALL** rules and regulations applicable to operating their aircraft. Below is a summary of the operational limitations outlined in the Small Unmanned Aircraft Rule 14 CFR, Part 107:

- Unmanned aircraft must weigh less than 55 lbs. (25 kg.)
- Visual line-of-sight (VLOS) only; the unmanned aircraft must remain within VLOS of the remote pilot-in-command and the person manipulating the flight controls of the small UAS. Alternatively, the unmanned aircraft must remain within VLOS of the visual observer.
- At all times, the small, unmanned aircraft must remain close enough to the remote pilot-in-command and the person manipulating the flight controls of the small UAS for these people to be capable of seeing the aircraft with vision unaided by any device other than corrective lenses.
- No person may operate a small, unmanned aircraft over a human being unless:
 - That human being is directly participating in the operation of the small, unmanned aircraft.
 - That human being is located under a covered structure or inside a stationary vehicle that can provide reasonable protection from a falling small, unmanned aircraft; or
 - The operation meets the requirements of at least one of the operational categories below:
 - Unmanned aircraft are defined as one of four categories as determined by the FAA:
 - Category 1: small, unmanned aircraft must weigh less than 0.55 lbs., including everything on board or otherwise attached, and contain no exposed rotating parts that would lacerate human skin. No FAA-accepted Means of Compliance (MOC) or Declaration of Compliance (DOC) required.
 - Category 2: small, unmanned aircraft must not cause injury to a human being that is equivalent to or greater than the severity of injury caused by a transfer of 11-foot-pounds of kinetic energy upon impact from a rigid object, does not contain any exposed rotating parts that could lacerate human skin upon impact with a human being, and does not contain any safety defects. Requires FAA-accepted MOC and FAA-accepted DOC.
 - Category 3: small, unmanned aircraft must not cause injury to a human being that is equivalent to or greater than the severity of an injury caused by a transfer of 25-foot-pounds of kinetic energy upon impact from a rigid object, does not contain any exposed rotating parts that could lacerate human skin upon impact with a human being, and does not contain any safety defects. Requires FAA-accepted MOC and FAA-accepted DOC.
 - Category 4: small, unmanned aircraft must have an airworthiness certificate issued under Part 21 of FAA regulations. Must be operated in accordance with the operating limitations specified in the approved Flight Manual or as otherwise specified by the Administrator. The operating limitations must not prohibit operations over human beings. Must have maintenance, preventative maintenance, alterations, or inspection performed in accordance with specific requirements in the final rule.
- Operations at Night:
 - Remote pilots in command who wish to conduct small, unmanned aircraft operations at night, must complete either the updated initial test or the updated recurrent online training prior to conducting such operations.

- Additionally, prior to conducting small, unmanned aircraft operations at night, the small, unmanned aircraft must be equipped with anti-collision lights that can be seen for 3 statute miles and have a flash rate sufficient to avoid a collision. These anti-collision lights must be operational.
- Must yield right-of-way to other aircraft.
- May use visual observer (VO), but not required.
- First-person view camera cannot satisfy “see-and-avoid” requirement but can be used if requirement is satisfied in other ways.
- Maximum ground speed of 100 mph (87 knots).
- Maximum altitude of 400’ AGL or, if higher than 400’ AGL, remain within 400’ of a structure.
- Minimum weather visibility of 3 miles from control station.
- Operations in Class B, C, D, and E airspace are allowed with the required ATC permission.
- Operations in Class G airspace are allowed without ATC permission.
- No person may act as a remote pilot-in-command or VO for more than one unmanned aircraft operation at a time.
- No operations from a moving aircraft.
- No operations from a moving vehicle unless the operation is over a sparsely populated area.
- No careless or reckless operation.
- No carriage of hazardous materials.
- Requires preflight inspection by remote pilot-in-command.
- A person may not operate a small, unmanned aircraft if they know or have reason to know of any physical or mental condition that would interfere with the safe operation of a small, unmanned UAS.

Many of the restrictions discussed above are waivable through the FAA if the agency demonstrates that the operation can be conducted safely. See “Options for Authorized Flight” section.

Special Government Interest (SGI) Waiver Process

Special Government Interest (SGI) waiver is required for all UAS to fly within an incident TFR, regardless of agency or mission. The SGI process is managed by the FAA to accommodate real-time application requests that will directly support a UAS operation benefiting a critical public good and addressing urgent circumstances.

All agency SGI waivers will be completed in coordination with the Aviation Unit for situational awareness and tracking. Interagency Dispatch Centers completing SGI waivers for agency owned or ODF contracted UAS will provide a copy of the waiver to the State Aviation Coordinator and NWOA Coordinator by emailing uassubmissions@odf.oregon.gov.

The form used for SGI Waiver requests can be found on the FAA website at https://www.faa.gov/sites/faa.gov/files/uas/getting_started/temporary_flight_restrictions/UAS-SGI_waiver_approval_request_form.docx/.

UAS Ordering Procedures Checklist

| Responsibility | Action |
|---------------------------------------|---|
| Person desiring to utilize a UAS | <input type="checkbox"/> Determine the type of mission and type of aircraft needed. <input type="checkbox"/> Determine if any special equipment is needed (e.g., infrared, video, or other payload). <input type="checkbox"/> Complete applicable planning activities to meet mission needs. |
| Person ordering aircraft | <input type="checkbox"/> Contact dispatch center and request the aircraft and special equipment needed. |
| Dispatch processing request/order | <input type="checkbox"/> The dispatch office will complete the ordering process and provide the pilot with an aircraft order form. <input type="checkbox"/> Provide the pilot with the required information for dispatch to include: <ul style="list-style-type: none"> • Fire name • Fire number • Dispatch phone number • Lat/Long • Air contact • Other aircraft on order • Ground contact • Mission • TFR/NOTAM (if applicable) |
| Remote pilot (dispatched to incident) | <input type="checkbox"/> Provide ordering dispatch with aircraft registration number and expected time of arrival (ETA) to the incident. <input type="checkbox"/> Remote pilots (or designated representative) will complete the ODF Aviation Safety Checklist (Appendix A) or locally approved risk assessment and preflight checks. |
| Dispatch processing request/order | <input type="checkbox"/> Conduct airspace deconfliction (as appropriate). <input type="checkbox"/> Relay (ETA) to incident (if applicable). <input type="checkbox"/> Fill resource order with the appropriate resource. <input type="checkbox"/> Send resource to RPIC. |

UAS Mission Planning Checklist

Prior to UAS operations remote pilots will complete the UAS Mission Planning Checklist below:

| Action |
|---|
| <input type="checkbox"/> Determine mission complexity: <ul style="list-style-type: none"> • Location • Land status (ownership) • Size of area/topography/vegetation type • Time of day |
| <input type="checkbox"/> Get permission for launch/recovery site from landowner or appropriate jurisdictional authority. |
| <input type="checkbox"/> Determine data objective. |
| <input type="checkbox"/> What is the desired product? |
| <input type="checkbox"/> Data collection timeframe: <ul style="list-style-type: none"> • What is that data processing schedule and final product delivery deadline? |
| <input type="checkbox"/> Acquire Geographic Information System data/maps for the project |
| <input type="checkbox"/> Start project file: <ul style="list-style-type: none"> • Pilot certification • Airspace authorization/FAA correspondence • Maps (project location, TFR, NOTAM, incident perimeter) • Financial codes/Cooperator agreements • Land use permits/authorizations • Planning documents (safety/risk checklist, etc.) |
| <input type="checkbox"/> Determine sensor payloads to be used: <ul style="list-style-type: none"> • Cameras • Mounts |
| <input type="checkbox"/> Determine aircraft to be used. |
| <input type="checkbox"/> Identify crewmembers (if ODF aircraft): <ul style="list-style-type: none"> • Pilot-in-command (required for all missions) • Visual observer (as required/not mandatory) • Data specialist (as required) |
| <input type="checkbox"/> Determine computer hardware and software requirements: <ul style="list-style-type: none"> • Geographic Information System (GIS) • Ground control station (GCS) • Data development • Storage space for processing data |
| <input type="checkbox"/> Risk assessment/safety checklist: <ul style="list-style-type: none"> • New or challenging terrain • High public exposure • Prescribed fire with multiple aircraft • High programmatic or operational risk • All launch and recovery sites must be established in an area where non-essential personnel and public can be executed from launch and recovery associated hazards |
| <input type="checkbox"/> For non-emergency missions utilize authorized agency procurement methods and ordering processes. |

UAS Flight Protocols Checklist

The following actions will support safe and efficient UAS operations. The below table is split into before takeoff, after takeoff, and after landing:

| Before take-off |
|---|
| <input type="checkbox"/> Brief supervisor(s) on flight plan. |
| <input type="checkbox"/> Confirm authorizations (agency, incident, airspace). If unsure, or if questions exist, contact the State Aviation Coordinator or NWOA Aviation Coordinator. |
| <input type="checkbox"/> Confirm/test communications (FM/AM/Cell/Sat). |
| <input type="checkbox"/> UAS remote pilots will follow established communications protocols and will make radio calls to local dispatch with the following information: <ul style="list-style-type: none"> • Unmanned aircraft • Configuration (fixed or rotary wing) • Type (see section below) • Agency assigned aircraft number • Call sign examples: <ul style="list-style-type: none"> ○ Unmanned R41 (rotary-wing, Type 4 UAS, Agency #1) ○ Unmanned F12 (fixed-wing, Type 1 UAS, Agency #2) • Ensure crew has appropriate communications equipment (e.g., FM/AM/Cell/Sat) |
| <input type="checkbox"/> Coordinate with dispatch, helibase aircraft and ground personnel in the area (as applicable) |
| <input type="checkbox"/> Record launch coordinates (lat/long, D/M/SS). |
| <input type="checkbox"/> Set altimeter and determine mission altitude (Garmin Fortrex or comparable). |
| <input type="checkbox"/> Confirm sensor payload and transponder (if applicable) are attached and functioning. |
| <input type="checkbox"/> Complete applicable aircraft checklists. |
| <input type="checkbox"/> Obtain takeoff clearance as required (local dispatch/aerial supervisor/helibase/IC). |
| After-takeoff |
| <input type="checkbox"/> Record takeoff time. |
| <input type="checkbox"/> Monitor assigned frequencies. |
| <input type="checkbox"/> Complete applicable aircraft checklists. |
| <input type="checkbox"/> Establish flight following as required. |
| <input type="checkbox"/> Coordinate/communicate with aircraft and ground personnel. |
| After landing |
| <input type="checkbox"/> Notify aerial supervisor, aircraft in the area, or ground personnel. |
| <input type="checkbox"/> Close-out flight following (as required). |
| <input type="checkbox"/> Record landing time. |

Safety

Safety is the principal consideration in all aspects of UAS operation. A safe UAS operation depends on an accurate risk assessment and informed decision making.

Risk levels are established by the severity of possible events and the probability that they will occur. Assessing risk identifies the hazard, the associated risk, and places the hazard in relationship to the mission. A decision to conduct a mission requires weighing the risk against the benefit of the mission and deciding whether the risks are acceptable.

Factors to consider during the risk assessment process:

- The UAS crew must identify hazards, analyze the degree of risk associated with each, and place hazards in perspective relative to the mission or task.
- Hazards might not always be limited to the performance of the flight but may include hazards to personnel if the flight is not performed.
- Ultimately, the remote pilot-in-command has the authority to decline a flight mission that they consider excessively hazardous.

Mission Coordination

- Use standard aviation “see-and-avoid” visual flight rules.
- Have access to the appropriate radio frequency for position reporting.
- Adhere to Fire Traffic Area (FTA) procedures.
- Do not fly UAS until you have established positive contact and coordinated with on-scene Incident Commander, aerial supervision (when applicable), and other aircraft.
- Remember, UAS must give way to manned aircraft.
- Detailed information about the FTA can be found in the “Temporary Flight Restriction (TFR) and Fire Traffic Area (FTA)” section.

Horizontal Separation

- UAS crews must ensure there is adequate visibility to conduct operations safely regardless of the airspace classification.
- Flight patterns must be adequate, e.g., not hindered by terrain.
- Consult ATGS/pilots before finalizing patterns and routes.
- Advise pilots on location of other aircraft if visual contact has not been reported.
- Geographic references, such as ridges or rivers, can be used to separate aircraft provided aircraft maintain assigned flight patterns.
- Virtual fences and UAS routes are effective for maintaining air traffic control with minimal radio traffic (virtual fences-roads, powerlines, ridges, lakes, etc.).

Emergency Procedures

Approved UAS have built in failsafe systems or plans, which can, in some models, allow aircraft to return to home (launch/recovery site) in the event of low battery voltage or loss of link with the ground control station (GCS).

If flyway occurs from loss of control, communication, or visual contact of the UAS:

- Notify aerial supervision, aircraft in the area, and ground personnel.
- Clear the affected airspace and suspend air operations in the area.
- Notify the flight following contact/dispatch (as required).

- Wait for the duration of the fuel/battery load.
- Resume air operations.
- Search for the missing UAS.
- Incident within an incident (IWI) plan (if applicable).
- Follow established mishap reporting procedures (see section “Mishap Reporting Procedures”).

Mishap Reporting

A UAS accident is defined by the National Transportation 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.
- 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.

Immediately report the above incident to the contacts outlined in the district Aviation Mishap Response Guide (notification to the District Forester and State Aviation Manager are required).

Submit a *SAFECOM* for any conditions, acts, observations, circumstances, or maintenance problems that led to, or could have led to, an aircraft mishap. This includes any significant damage to an aircraft that renders it unairworthy, even temporarily. These reports will be made using <https://www.safecom.gov> by the manager as soon as possible.

UAS Maintenance

In addition to the requirements in Section 107.15 of Part 107, ODF remote pilots will maintain a maintenance log for their assigned aircraft. All ODF remote pilots will be required to conduct and document an annual aircraft inspection. Elements of the inspection will include but are not limited to:

- Confirm aircraft configuration conforms to original manufacturer's design.
- Inspect the airframe of general condition and serviceability.
- Note serial numbers of airframe and Ground Control Station (GCS).
- Perform preflight checklist.
- Run systems diagnostics to confirm all tests are normal.
- Conduct ground engine run to confirm proper operation.
- Check battery charger and other peripherals for proper operation.
- Document any missing kit items.

Annual UAS inspections for agency aircraft will be documented on the UAS Inspection Form (ODF UAS Form-002) and emailed to the NWOA Area Aviation Coordinator.

At the request of ODF, vendors providing UAS services must provide maintenance records for aircraft.

UAS Data Collection

All information captured by ODF UAS shall be collected and stored in accordance with the applicable Information Technology policies, standards, guidance, and the records retention policy and schedule.

UAS Protection of Privacy and Rights

UAS operators and observers ensure the protection of private individuals' civil rights and reasonable expectation of privacy before deploying UAS. UAS operators and observers ensure and are held accountable for ensuring the operations of the UAS intrude to a minimal extent upon private persons and businesses. To accomplish this primary goal, ODF observes the following:

- When the UAS is flown, the onboard cameras are turned to be facing away from any occupied structures, etc., to minimize inadvertent video or still images of uninvolved persons or property.
- ODF does not conduct random surveillance activities. The use of UAS is tightly controlled and regulated. Some examples of authorized missions for UAS are:
 - Reconnaissance directly supporting fire suppression activities
 - Fire scene documentation (still photo/video)
 - Survey and data collection directly related to fire suppression and resource observation efforts (insect and disease, wildlife observation, fish presence, etc.)
 - Infrared camera use for detecting fire
 - Agency Public Information cinematography/photography

FTA UAS Sightings

UAS sightings are becoming more prevalent with the increased use by the public. It is important to communicate any sightings in the case of a fire scenario. The following are key points:

- UAS are like any other hazard. "If you see something, say something."
- Fire personnel should report unauthorized UAS or drone activity to their dispatch center and/or supervisor.
- Information that should be gathered is size, color, altitude, flight pattern if observed. Check for a Remote-ID broadcast from the UAV that may contain pertinent information.
- If you encounter a person operating a UAS over the incident, a simple request for them to stop should be made. If they fail to comply, law enforcement should be identified. The safety of personnel should be assessed in any operator contact.
- Dispatch centers should report UAS incursions to the nearest ATCC.
- Safety of flight should be primary over any fire aircraft locating the operator.

The following incursion protocol is recommended when a UAS sighting occurs. It is important for fire personnel to communicate with them. It is essential to use your discretion with the following protocol. Each situation is different especially when it comes to initial attack or working on a fire where an IMT is in place. This will help guide the decision-making process in determining the safest outcomes for fire operations. Make sure to rely on pilot discretion as well.

If ATGS is overhead on the incident:

- Notify ATGS of time, location, altitude, direction, and operator (if known). This can be done through the proper A/G, A/A, or Air Guard frequency.
- ATGS will separate incident aircraft from the incursion area.
- ATGS will notify the Incident Commander or AOBD if an IMT is in place.
- ATGS will notify the local dispatch center and/or helibase of intended actions and request law enforcement if needed.

If no ATGS is overhead and incident has aircraft over the incident:

- Notify pilots of time, location, altitude, direction, and operator (if known). This can be done through the property A/G, A/A, or Air Guard frequency.

- Notify the IC or AOBD if an IMT is in place.
- Notify the local dispatch center and/or helibase of intended actions and request law enforcement if needed.
- Diver enroute aircraft if needed.

No aircraft over the incident:

- Notify local dispatch center of incursion.
- Divert enroute aircraft if needed.

When members of the public are seen operating a UAS, it is important to stop and make contact with them if an incident is occurring. The following will help guide what decisions to make when the operator can or cannot be identified:

Operator identified/located and stopped:

- Relay location, contact information, and specific details to law enforcement.
- Fire operations may resume in the vicinity of the incursion once the hazard is mitigated.
- IC or designee reports to State Aviation Manager and fills out the ODF Aircraft Report Form.

No operator identified/located and stopped:

- Fire operations may resume in the vicinity of the incursion once the hazard has been mitigated.
- IC or designee reports the sighting to the State Aviation Manager using the ODF Aircraft Report Form.

Guidance on Non-agency, Non-Cooperator UAS TFRs (14 CFR 91.137(a)(1))

Due to potential conflicts with Non-Agency, Non-Cooperator UAS Temporary Flight Restrictions (TFRs) associated with Beyond Visual Line of Sight (BVLOS) Special Government Interest (SGI) waivers, the Federal Aviation Administration (FAA) has agreed to actively assist firefighting organizations with mitigating any potential adverse impacts. If a conflict arises, there is a coordinated procedure to request an SGI associated BVLOS TFR to be canceled.

The BVLOS UAS TFR requirements within section (a)(1) are more restrictive than wildland fire TFR requirements within section (a)(2) in that a BVLOS UAS TFR prohibits wildland fire agencies from entering that type of TFR.

Recommendations:

- Pilots should regularly check and monitor TFR's during their flight planning and diverts.
- Pilots should obtain all NOTAMs for the flight route prior to launching.
- For Situational Awareness and safety mitigations, all dispatch centers should monitor AFF.gov, FAA.gov Federal Aviation Administration - Graphic TFR's (faa.gov), Skyvector.com, Defense Internet NOTAM Service Defense Internet NOTAM Service (faa.gov), or ForeFlight.

Procedures:

- Do not enter 91.137(a)(1) TFRs.
- If an initial attack occurs at the same time / location or area as a 91.137(a)(1) TFR, the respective dispatch center will call the FAA SOSC at 202-267-8276 to inform them that the TFR needs to be cancelled. (Details below)
- Once the UAS has been reported to be on the ground, the SOSC will cancel the TFR. (Details below)
- Submit a SAFECOM if engagement is delayed and report to the National Airspace Coordinator (contact info below).
- Reference internal best practices for procedures.

- The procedure includes a notification from the FAA when one of these BVLOS TFRs are placed, as outlined below, and if you are not at an interagency dispatch center it may help to contact your local federal dispatch center to make sure that this information will be forwarded to your dispatch center.

National notification and coordination procedures:

- NICC sends TFR information to respective GACC with follow up phone call.
- GACC sends notification to respective local Dispatch Center with follow up phone call.
- Local Dispatch Center notifies local aviation resources of the BVLOS SGI TFR.

In the event of a cancellation request:

- Responding aviation resource or dispatch identifies location of incident is in alignment with location of BVLOS SGI TFR.
- If discovered by Aviation asset request local dispatch to contact SOSC and cancel TFR in order to take aerial suppression action.
- If discovered by Local Dispatch Center contact responding resources and notify them that deconfliction needs to take place prior to engagement.
- Contact made by local dispatch to SOSC with cancellation request.
- SOSC verifies projected duration of suppression action.
- SOSC contacts outside entity UAS pilot to ground aircraft.
- SOSC calls local Dispatch Center and verifies UAS is on the ground and TFR is cancelled.
- If incident evolves into an extended attack, consider a 91.137 (a)(2) Wildland Fire TFR
- If incident does not evolve, please contact SOSC with an update.

Support

Contact your Area Aviation Coordinator if you need assistance with Non-Agency, Non-Cooperator UAS Temporary Flight Restrictions (TFRs).

Appendix A– ODF Aviation Safety Checklist Form

| ODF Aviation Safety Checklist | |
|---|------------------------------|
| Incident/Project Name: | Incident/Project Number: |
| Aircraft Company: | Aircraft Tail Number: |
| Mission: | Date: |
| Natural Resource Management Flight (Non-fire) | |
| Natural Resource Management Flight (Non-fire) | Notes/ Documentation: |
| Pilot and aircraft are identified in the ODF CWN aircraft list, or under an ODF Exclusive Use Contract, and have a valid insurance certificate on file with ODF. | |
| Pilot and aircraft are qualified for the mission. | |
| ODF contact identified and communicated. | |
| Pilot duty limitations and off-duty scheduling. | |
| Flight plan/resource tracking-FAA or agency flight plan filed. | |
| Passenger manifest-List names and leave with the person doing the flight following prior to departure. | |
| Flight following and radio equipment- Flight following procedures in place; radio equipment is adequate and operational. | |
| Pilot briefed on nature and sequence of the mission. | |
| Geographic area being flown. | |
| Analysis of known hazards-Known hazards discussed (Use a flight hazard map if flight is planned below 500' AGL), and high-level recon prior to decent to low level, below 500' AGL. | |
| Environmental concerns | |
| Hazardous Materials-Hazardous materials cannot be flown internally on the aircraft (unless the pilot and aircraft have an FFA approved Haz-Mat Certificate). Pilots in Command can approve hazardous materials internally on the aircraft. The transportation of hazardous materials must be in compliance with the Interagency Aviation Transport of Hazardous Materials NFES 1068 Handbook. Hazardous materials must be transported in compliance with the issued HazMat Certificate. (This certificate can be found online at https://www.oregon.gov/odf/fire/Pages/aviation.aspx) | |
| Fire Management | |
| Fire Management | Notes/ Documentation: |
| Fire Name (if available) | |
| Fire Number (if available) | |
| Agency Responsible | |
| Latitude and Longitude (Degrees and decimal minutes) | |
| Bearing and distance from a base, OMNI, or VOR | |
| Who is flight following? | |
| Air-to-ground (white net)-who is the ground contact | |
| Air-to-air-who is the air contact? | |
| Air Guard | |
| Ground-to-ground | |
| Ground contact | |
| Passenger manifest | |
| Mission objectives | |
| Temporary Flight Restriction in place, (if applicable) | |
| Aircraft hazards-flight hazard map reviewed if planned flight under 500' AGL, other aircraft assigned or ordered for the incident, other incidents in close proximity | |
| Signature: | Date: |
| Position: | |

Appendix B - SEAT Base Spill Response Plan

Quick Tips for Containing Fuel Spills

1. Create a berm using charged wash down hose, water supply hose, load hose, or other objects to surround the spill.
2. Do not “chase” the spill away from the pit area by trying to wash away or dilute.
3. If surrounding; allow some water/liquid to dry away, settle or evaporate before beginning cleanup.
4. Absorb with litter, sand, gravel, dirt, or dry away, settle or evaporate before beginning cleanup.
5. If a hose is leaking where there is no valve “strangle” hose shut by driving onto hose with a truck tire.
6. If possible, discharge back to holding tanks.

SEAT Base Fuel Spill Procedures

Report all fuel spills to appropriate authority (specific to each SEAT Base location). **Do not attempt to hide the fact that a spill occurred.**

Procedures for handling large fuel spills (over 10 feet in dimension, or over 50 square feet in area) are subject to the regulations and procedures established by the authority having jurisdiction over airport operations and Local Fire Departments.

Small spills involving an area less than 18 inches in any dimension normally involve minor danger. However, personnel staffing fire extinguishers during start-up procedures should stand by until the aircraft departs the area of the spills because engine exhaust could ignite the spill. These spills contain such a small amount of fuel that they may be absorbed, picked up, and placed in an approved container.

If a leak develops or a fuel spill occurs during aircraft servicing, initiate the following emergency procedures **without delay**. Warning: During any spill or leak, extreme caution must be exercised to avoid actions that could provide ignition of fuel vapors.

A fire watch should be posted, and notification made. The fire watch should have one or more fire extinguishers with at least a 20: BC rating. Local regulations and procedures must be followed. However, in most cases absorbent materials (Firelce Dry Powder) or emulsion compounds should be used to absorb the spilled fuel, especially if aviation gasoline (AvGas) or low flash point fuels are involved. The contaminated absorbent should be picked up and placed in an approved container to await proper disposal.

Warning: Cell phone should not be used near fuel cleanup operations!

If the fuel handler’s clothing becomes wet with fuel, the individual should follow the instructions below:

1. The individual affected should leave the refueling area immediately.
2. The act of removing clothing creates static electricity; wet clothes with water before removing. Use emergency eyewash/shower if available. If water is not available, they should hold onto a grounded grounding rod to prevent sparks when they removed their clothing.
3. Wash fuel off skin with soap and water as soon as possible.
4. Seek medical attention immediately if needed.

Warning: Do not enter trailers or FBO with fuel-soaked clothing!

SEAT Base Firelce©/BlazeTamer©/Retardant Spill Procedures

Firelce©, BlazeTamer©, and Phos-Check© Retardant are all non-hazardous and non-toxic, however loaders or tanker base managers who have clothing covered in any of these products should not enter buildings or vehicles where avoidable. Clean-up operations should be done outdoors with ample water.

Firelce Spills: Large spills of Firelce dry concentrate are rare, however the breathing in of dry concentrate is never recommended. Stay downwind of any blowing powder and wear a dust mask when sweeping or collecting loose powder. Blowing Firelce concentrate can cause eye irritation. Always wear safety glasses when collecting spilled or loose powder.

BlazeTamer Spills: As a water-based product, if spilt on electrical equipment, the product will cause short-circuits. Increase ventilation if necessary. If possible, contain the spill. Place inert absorbent onto spillage. Collect the material and place into a suitable labelled container. Do not dilute material but contain. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs, inform the local water and waste management authorities in accordance with local regulations. Avoid inhalation of vapors and mist, and skin or eye contact.

Phos-Check LC95 Spills: Absorb and/or contain spill with inert material (sand, vermiculite, or other appropriate material), then place in a suitable container. Do not flush into surface water or sewer system. Wear the recommended personal protective equipment.

SEAT Base Environmental Precautions

Precautions must be taken to avoid spills and wash-down water from entering any storm drains or run-off rainwater collection areas. These areas commonly drain to ditches, streams, and other waterways.

Although the fire suppressing chemicals used by ODF are non-toxic and environmentally inert and will eventually enter the environment via different routes of application to the wildland fire environment or landfill disposal; care must be taken to avoid entry into surface waters.

Water drains to the lowest point. Please check the specific SEAT Base Operating Plan for specific areas of concern.

SEAT Base Spill Notifications

If a fuel spill over 10 feet in any direction occurs, move personnel away from the area, and notify the Airport and local Fire Department.

If a suppressant spill occurs or wash-down water migrates to an area of risk that is in jeopardy of contamination or becomes contaminated immediately notify the following:

1. Local ODF or Fire Protection District Supervisor
2. Assigned ODF Area Aviation Coordinator
 - a. Eastern Oregon Area Coordinator:
 - b. Southern Oregon Area Coordinator:
 - c. Northwest Oregon Area Coordinator:
3. State Aviation Operations Specialist
4. A company representative if information is needed

SEAT Base End of Season Disposal Plan

Residual suppressant left at the end of the season will be picked up by a tanker truck, vacuum truck, or otherwise properly disposed of. Make sure all residual retardant from lines is pumped back into the holding tank, and if possible, sample buckets, pump holdings, and other residuals are emptied back into the main mix tank. Do not take it upon yourself to dispose of residual product.

Appendix C - ODF Aircraft Document List and Locations

| Document Name | Storage Locations |
|--|---|
| ODF Hazardous Materials Special Permit | www.oregon.gov/odf/fire/Pages/aviation.aspx |
| Federal Letters of Approval | www.oregon.gov/odf/fire/Pages/aviation.aspx |
| ODF MMA TARO | <u>Microsoft Teams > Field Resources > Aviation Resources > Forms</u> |
| ODF Air Operation Policy | https://stateoforegon.sharepoint.com/sites/ODF-Policies/ |
| ODF Aviation Shift Ticket | www.oregon.gov/odf/fire/Pages/aviation.aspx |
| ODF Fixed Wing CWN List | <u>Microsoft Teams > Field Resources > Aviation Resources > Call When Needed</u> |
| ODF Helicopter CWN List | <u>Microsoft Teams > Field Resources > Aviation Resources > Call When Needed</u> |
| ODF CWN Hiring Agreement | www.oregon.gov/odf/fire/Pages/aviation.aspx |
| PNW Interagency Aviation Frequency Guide | <u>Microsoft Teams > Field Resources > Aviation Resources > Frequency Guide</u> |
| PNW Frequency Guide Error Sheet | <u>Microsoft Teams > Field Resources > Aviation Resources > Frequency Guide</u> |
| ODF Aviation/ District Aviation Contacts | <u>Microsoft Teams > Field Resources > Aviation Resources > Contacts</u> |

Appendix D – Aviation Unit Organization

