UNITED STATES FOREST SERVICE

National Night Air Operations Plan

2021

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Scope

This document provides information for the use of US Forest Service (USFS) aircraft at night to enhance safety and operational effectiveness through the establishment of standardized operational guidelines and minimum qualification standards for the specialized aviation positions. For interagency night flying operations, the USFS utilizes FIRESCOPE for operational guidance.(January 2021 ICS-800)

Authority

The Pacific Southwest Regional Aviation Group is responsible for the update and completion of this guide. Authorization is granted by the Chief of the Forest Service and receives the leader's intent and direction from the Director of Fire and Aviation Management.

The Night Flying Helicopter and Night Flying Aerial Supervision Platform are administered and operated by the Pacific Southwest Region.

All night flying operations shall be conducted in accordance with FSM 5709.16 ch 30 36.8 and the National Night Air Operations Plan.

Duration

This Plan is effective until superseded or a new version is approved.

Definitions

Aided Flight: An aided flight is a VFR flight at night where the pilot of an aircraft uses night vision goggles (NVG) in an operational position to maintain visual reference to the surface and to enhance safety through situational awareness of the surroundings.

Established Water Point: A water point that is staffed and being utilized for ground fill operations.

Lighted Airport: An airport where runway and obstruction lighting is available.

Nighttime: Defined by 30 minutes after official sunset until 30 minutes before to official sunrise.

Night Flying Guidelines (NFG): FIRESCOPE's interagency document on Night Flying.

Night Vision Device (NVD): Any electro-optical device that is used to detect visible and infrared energy, and provide a visible image. These include night vision goggles, forward-looking infrared, thermal sights, and low-level television.

Night Vision Goggles (NVG): NVG is a head-mounted, lightweight, and self-contained binocular appliance that amplifies ambient light. NVGs are worn by crew members and are used to enhance the crew member's ability to maintain visual reference to the surface at night. Goggles are an integral part of the overall Night Vision Imaging System, not the entire system.

NVG Flight Operation: A flight or operation during any part of which NVG are used by a flight crew member(s) in an aircraft which is NVG equipped and approved for NVG operations.

NVG Flight Time: The flight time gained by a flight crew member during an NVG flight operation.

Quality Assurance: The process of verifying or determining whether products or services meet or exceed customer expectations. Quality assurance management includes planning and checking standards while quality controls are specific standards that mitigate risk.

Risk Management: A formal process within the SMS that describes the system, identifies the hazard, assesses the risk, analyzes the risk, and controls the risk. The risk management process is embedded in the process used to provide the product/service; it is not a separate/distinct process.

Unaided Flight: Unaided flight is a nighttime flight conducted without the use of NVG or a flight with NVG in the non-operational position.

Safety Management System

The objective of a Safety Management System (SMS) is to provide structure to control risk and assure quality in operations. A formal system of hazard identification and risk management is essential in controlling risk to acceptable levels. System Safety is centered on an organized approach to hazard identification and risk management with the intent to minimize the effect on property, financial, environmental, human and societal losses.

Participants in System Safety continually challenge the processes, the culture, and the systems to identify weaknesses that can be mitigated toward the greater purpose of mishap prevention.

The foundation of SMS consists of four "components," they are Policy, Risk Management, Quality Assurance, and Promotion. When fully implemented SMS provides and promotes a Positive Safety Culture. The desired positive Safety Culture is informed, flexible, learning, just and a reporting culture that captures the operational knowledge and experience of the employees.

Per FSM 5720.3 The policy of the Forest Service requires Aviation Managers to follow the direction in aviation manuals, handbooks, guides, and plans listed in 5706.

Aviation activities must comply with applicable Federal and State laws, regulations, and standards for aviation safety and for reporting and investigating accidents and incidents (FSM 5700; FSH 5709.16; 6730, and Forest Service aviation guides).

The organization must utilize Safety Management System as the guiding safety process for aviation operations. The detailed elements of agency aviation safety must be maintained in the NASMSG. This guide contains best practices to achieve goals and objectives, and contains mandatory policy (FSM 1110.8, FSM 5108)

In 2009, the United States Forest Service adopted an Aviation Safety Management System (ASMS) as the guiding model to achieve zero accidents. On June 20th, 2011 the Aviation Safety Management Systems Guide became policy and can be found in its entirety at: Aviation Safety Management Systems Guide.

The ASMS guide should be utilized by all aviation personnel to meet or exceed the aviation industry best practices and standards for safety.

Per FSM 5720.2, the primary objective for the Forest Service aviation program is to operate aviation services by completing all missions safely and without mishap. In addition; the Forest Service is required to comply with all Federal Management Regulations (FMR) for aircraft management (41 CFR 102-33) and with all contract and related helicopter operational guides.

Risk Management

It is the responsibility of every Forest Service employee to manage risk to the lowest practical level. The flight crew will refer to the NVG Programmatic Operational Risk Assessment (ORM) to ensure that the “best practices standards” are being met.

It is the responsibility of both management and the flight crew to ensure that the benefit gained exceeds the risk and expense. The flight crew has the final say if they will accept the mission.

The flight crew is required to complete the following risk measures before engaging in firefighting operations:

- Daily Operational Risk Assessment
- Night Operations Risk Assessment
- NVG Mission GO-NO GO Checklist
- Pre-Flight Weather Operations Checklist
- Night Operations Checklist for Multiple Aviation Resources
- Quality Assurance

Any mishaps or incidents will be reported via the SAFECOM Reporting System to ensure hazards are identified, monitored, mitigated and lessons learned are shared.

The National Office, Regional Office, and Forest will provide oversight, quality assurance and review of night flying operations throughout the field season. The above will be accomplished by the following:

- Contractor Compliance Audits - at the Regional and National level
- Operational Reviews – all levels of management
- Base Reviews – all levels of management

Training and communication are the key components that promote a “Learning Culture” to ensure that Night Flight Operations are conducted at an acceptable level of risk. The following will be accomplished by:

- All Forest Service employees involved in the night flying operations program are encouraged to communicate freely. Lead Up, Lead Down, Lead Laterally
- All training in the NVG Training Syllabus will be accomplished
- New technologies and training will be continually evaluated and considered

Fixed Wing Aircraft and Pilot Requirements

Aircraft Capability

- Seven-day effective staffing during the mandatory contract performance period. 1800 May 25th through 0600 November 21st.
- Turbine powered multi-engine aircraft with a cruise speed of 250 knots indicated or better with pressurization.
- Aircraft fuel endurance of 4 or more hours not including a 45-minute reserve.
- Aircraft must have separate identical Audio Control systems for the PIC, SIC/observer and Sensor Operator (directly behind the SIC/observer).
- 3 P25 compliant VHF FM radios, panel mounted and accessible to the ATGS.
- 3 VHF AM radios, panel mounted and accessible to the ATGS.
- The EO / IR sensor must be operable from, and the EO / IR video display must be visible from the pilot and co-pilot position as well as the primary sensor operator workstation. The forward display must be stow-able (secured) for takeoff and landings when not needed.
- Audio and video mission recording capability.
- Accessory Power Source.
- Automated Flight Following (AFF) system
- Panel Mounted GPS Unit.
- GPS with Moving Map.
- Internet capabilities (data in/out).

Aircraft Recommended Requirements

- Mesh Network functions

Pilot Minimum Requirements

- Each Pilot in Command (PIC) shall, at the discretion of the Contracting Officer (CO), pass a Government evaluation ride (not to exceed 2-hours).
- The PIC shall hold a current valid FAA commercial or higher Pilot certificate with current total hours equal to or above:

Fixed Wing Flight Hours Experience

All Airplanes	**Flying hours**
Total time	1500
Pilot-in-Command total	1200
Pilot-in-Command	**Flying Hours**
Category and class to be flown	200
Fixed wing – preceding 12-months	100
Cross Country	500
Operations in low-level mountainous terrain*****	200
Night Flying	200
Instrument – in flight	50
Instrument – actual/simulated	75
Make & Model to be flown	25
Make & Model - preceding 12 months	10

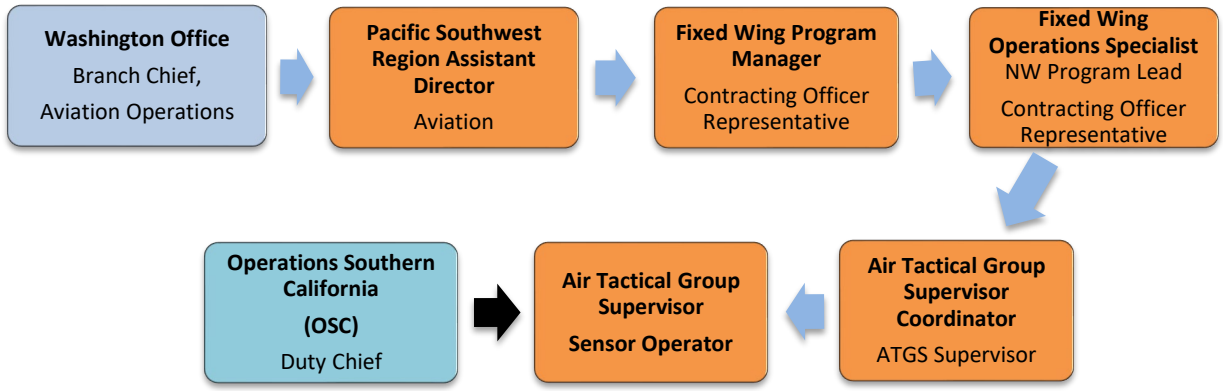
**** Low-level mountainous terrain is a flight at 2500 feet AGL or below in terrain identified as mountainous in 14 CFR 95.11 and depicted in the Aeronautical Information Manual (AIM) Figure 5-6-2.***

Chapter 1 NightWatch

Program

NightWatch is the combination of a contracted Light Fixed-wing Aircraft (Air Attack 51), qualified Air Tactical Group Supervisors who have completed additional training related to Incident Awareness and Assessment (IAA) technologies and contracted Sensor Operators (SO's). This program provides enhanced situational awareness, near real-time information sharing and dissemination and aerial supervision in support of the NNAO and interagency all-hazard incidents in the Southern California Operations Area of the Pacific Southwest Region.

Organization



Before Arrival

The Night ATGS(s) will read and understand the National Night Air Operations Plan, the Region 5 exclusive use light fixed wing ATGS/IAA aircraft contract and FIRESCOPE Night Flying Guide:

- FIRESCOPE Night Flying Guide

Carry an enhanced ATGS kit with an illumination device. Examples of some illumination devices used are:

- Flashlight
- Headlamp with or without color filter
- Penlight with light and ink on the same side of the instrument
- Kneeboard light
- Lip/Mic light

The Air Tactical Group Supervisor Coordinator (ATGS COORD) will maintain the staffing schedule of the night ATGS's. The ATGS COORD will make every effort to avoid a simultaneous pilot/ATGS change-out. It is the responsibility of the assigned air attack to request a resource order for their relief through the Angeles National Forest Emergency Communication Center (ECC) using established processes. This should be completed at least three days in advance of reporting date and time.

Personnel Mobilization

Before Departure:

After obtaining a resource order, the responding ATGS will notify Northern Operations Geographic Coordination Center (NOPS) or Southern Operations Coordination Center (SOPS) of travel itinerary and text the following individuals with ETD/ETA information to:

- XXXX-XXXX, R-5 Air Tactical Group Supervisor Coordinator (ATGS COORD)
- D. Scott Smith, R-5 Fixed Wing Ops Specialist (FWOS), NW Program Lead
- Mike Eaton, R-5 Fixed Wing Program Manager (FWPM)

Adhere to travel and work-rest guidelines when mobilizing/demobilizing and resetting work schedule for Night ATGS duty, National Interagency Mobilization Guide.

Upon Arrival:

- Notify Southern Operations Coordination Center (OSCC) of arrival at your assigned location
- Send "Arrived" text message to ATGS COORD, FWOS, and FWPM
- When you arrive at aircraft base for your first shift check in with Hosting ECC. Update contact board name(s), phone number(s), email address and assignment dates
- Establish contact with night flying helicopter Superintendent and participate in briefings if co-located

First Operational Shift:

The Regional Aviation Group (RAG) building at Fox Field is the standby location for the ATGS.

- Aircraft orientation
- Emergency procedures
- CRM mission specific duties
- Special mission equipment, etc.
- Perform an aircraft inspection

- Visual Inspection (Walk Around)
- Check radios for correct programming
- Confirm fuel load
- Start-up computer and camera systems

Daily Briefings

The NightWatch ATGS will conduct daily shift briefings using the standard elements contained in the AA51/FireWatch 51 Standard Operations Procedures guide (SOP). The night ATGS(s) will participate in the night operations briefing with the night flying helicopter either in person or via telecommunication when possible. Briefing should occur at the beginning of the night flying helicopter's shift.

Incident Response

The USFS South Operations Area Duty Chief is the authority for all mobilizations of AA-51. The dispatching/hosting ECC will contact the assigned ATGS and provide a complete FC-106 dispatch form with incident contact (telephone and email) information before the aircraft will respond. Inflight diverts will be given in the same format, and "blank" FC-106 forms are kept on the aircraft for this purpose.

The NightWatch aircraft is mobilized in the same manner as a daytime Air Tactical Platforms. ATGS will coordinate with South Ops (OSCC) Federal Aircraft desk and ECC at the beginning of each shift to status the asset and receive fire activity updates. Aircraft weight and balance with manifest and performance sheet will be posted on the bulletin board in the night ATGS office. Requesting units that order night operational aircraft will have their ECC staffed with qualified aircraft dispatchers during night aircraft operations. Items to consider;

- Normal duty day for the resource is 12 hours for day shift and 12 hours for night shift.
- Established shift hours will remain 1800 - 0600 throughout the duration of the fire season.
- Avoid calling ATGS personnel when they are off duty to ensure 8 hours of uninterrupted rest.
- The night ATGS pilot has a maximum duty day of 14 hours of which eight can be flight hours

Incident Operations

The number one priority of this resource is incident airspace management. When supervising aircraft operating with the aid of NVG's, aerial supervisors shall be vigilant of any formation or

inflow of fog or low clouds as NVG's do not see fog forming or encroaching. This includes travel routes to and from bases of operation and dip sites. The Night ATGS will advise any aircraft operating with NVGs of any fog or low cloud situations. Assume they are on NVG and cannot see the hazard.

The NightWatch crew shall use caution to avoid flying into smoke column(s). Smoke columns may be hard to detect at night when there is little ambient light. The NVG monocular on the aircraft can be used to greatly improve situational awareness on the location of the smoke column. The PIC and ATGS shall be extra cautious of hazardous terrain, aerial hazards and must avoid losing situational awareness.

Recovering to alternative bases of operation is not an option for this program as the aircraft is shared between two shifts. However, if an alternative base is the best option between flight legs during a shift the flight crew should exercise that option.

Incident Awareness and Assessment

Information gathered over incidents will be retrievable in the Fire Enterprise Geospatial Portal (EGP). Process to be added when identified…

Duty Day and Transitions

It is important to understand that duty day has a significant impact on the utilization of the Night Air Attack. "Early Up's," shifts beginning before established start time, should be avoided as much as possible. For extended attack/large fires every effort should be made to have AA-51 arrive on the scene of the incident with enough daylight to assess hazards, terrain, fuel, fire behavior and aerial firefighting activity (familiarization flight). This flight does not need to be any longer in duration than necessary to receive a briefing from the day aerial supervision platform(s). It is common to be requested over an incident to gather situational awareness and conduct a briefing to Operations before the morning briefing at ICP(s). This usually occurs between 0500-0600 hours. When practical the Night Air Attack should have a Night to Day transition with the first day Air Attack. Duty day and cumulative flight hour management can affect the opportunity to have a transition with the "first up" day air attack and the ability to provide constant coverage during critical incident operations. Adjustments to the daytime air attack duty day should be made to accommodate these important transitions.

Contract Management

It is important that all ATGS's maintain records in accordance with established contract business standards. To assist with this, a contract management briefcase will be with the aircraft at all times and consist of the following.

- Contract management binder
- Memory stick
- Interagency Aviation Technical Assistance Directory
- National Night Air Operations Plan
- Night Cooperator frequencies

ATGS is responsible for completing the following aircraft contract daily forms:

  - Aircraft Contract Daily Diary
    - Include duty day experience, ordering issues, incident-specific challenges (ex: 6 & 36, flight time issues) and any constructive criticism for the improvement of the program
  - Completion of the FS-122, IBS data entry
  - Incident Aircraft Cost Summary

Maintenance

When maintenance is performed on the aircraft (routine or unscheduled) contact a USFS maintenance inspector before resuming flight activities.

- Region 5 Airworthiness Duty Line 916-640-1040 (Always call this first)
- Dean Penrod (National AMI) 208-387-5209
- Jesse Luna (R-5 AVI) 661-723-2584
- Jon Curtis (R-5 AMI alternate) 916-698-8902
- Jared Daly (R-5 AMI alternate) 530-338-9829
- Jason McGovern (R-5 AVI alternate) 916-462-0970

Unscheduled maintenance of any type, aircraft incident/incident with potential shall be reported to the ECC, OSCC, and AMI listed above and the contract COR. SAFECOM's shall be completed as soon as the issue is known. The corrective maintenance action(s) and return to contract availability will be approved by the responsible AMI.

Training and Certification

The NightWatch Job Aid (appendix A) ensures employees are familiar with integrating technology with the aerial supervision role. A list of appropriately trained and documented Night ATGS/Sensor Operators shall be generated by the Pacific Southwest NightWatch/FireWatch 51 Fixed Wing Operations Specialist program lead.

Proficiency Flights

Proficiency flights ensure the NightWatch crew, aircraft and equipment are operational. NightWatch crewmembers who have not flown a mission within the past 14 days may perform these flights (up to one hour). Before the flight, ensure the NightWatch Mission Aviation Safety Plan (MASP) is complete and provided to the controlling ECC. Proficiency flights will include the following tasks:

- Complete a Daily Operational Risk Assessment (DORA)
- Utilize the MASP for crew mission briefing
- Perform a pre-flight walk around
- Preflight checklist as requested by the pilot
- Power up and operate FLIR
- Initiate standard flight following procedures
- Communicate terrain avoidance measures with pilot
- Assess elevation(s) of FTA
- Assess aerial hazards in the FTA
- Confirm avoidance of smoke column with Pilot
- Confirm onboard computer system is operational
- Consistently assess for fog formation
- Proper shutdown and stowing of system
- Conduct AAR
- Document training flight narrative in Daily Diary

Training flights can be independent of the helicopter, but it is highly encouraged to participate in helicopter proficiency/training flights.

ATGS Demobilization

Fatigue management is a high priority in reducing unnecessary exposure to our employees. Employees will use the most effective methods of travel to reduce fatigue. Employees will adhere to work-rest guidelines when demobilizing from night ATGS assignments (2:1) work rest. It is the responsibility of the ATGS to;

- Coordinate with relief ATGS on needed relief date/time.
- Contact ECC and GACC with departure travel information.
- TEXT ATGS COORD, FWOS, and FWPM with ETD/ETA information.
- Closeout with ONCC or OSCC GACC and Text “Home” to ATGS COORD, FWOS, and FWPM.

Authorized Passengers

Based on the elements of CRM and extended CRM into adjoining functions the following personnel are approved to fly on board the aircraft during training and or operational flights. ATGS/ATGS trainees, Helicopter Managers for Night Flying Helicopter, Helicopter Operations Specialist supporting the night flying helicopter program, Aircraft dispatchers, or Incident Personnel which have a direct need of program products (OSC, PSC, IC). All flight operations will be conducted in accordance with this plan and supporting documentation (MASP).

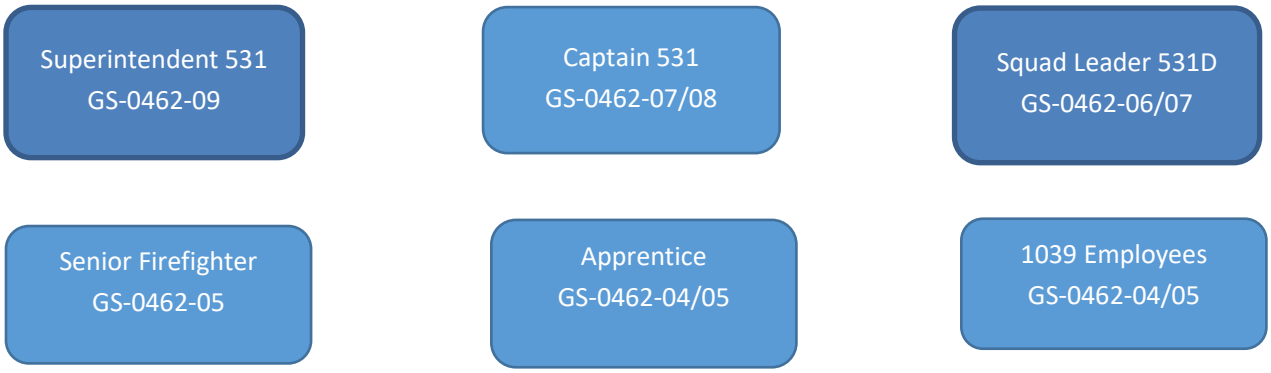
Chapter 2 Night Helicopter Operations

Crew Organization

The Helitack crew will be staffed to a minimum of 7 personnel to maintain 7 day staffing, funding for positions are as follows: 1-GS-9 Superintendent, 1-GS-8 Captain, 1-GS-6/7 Squad Boss, 4-GS-5 Senior Firefighter

This is a minimum to be able to staff the helicopter at minimum levels. It is recommended that there be additional personnel up to 15. This will be evaluated throughout the fire season to determine the best crew size.

2021 Crew Organization



Training

High levels of NVG proficiency, along with a well-balanced NVG experience base, will help to offset many of the visual performance degradations associated with night operations. NVG experience stems from proper training coupled with numerous NVG flight operations. An experienced NVG crewmember should be acutely aware of the NVG operational envelope and its correlation to various operational effects, visual illusions and performance limitations. Continued exposure during the NVG recurrent training will help strengthen and solidify this experience base. NVG currency training needs to include ground evolutions and flight training curriculum.

Currency training shall be conducted at least every two weeks for NVG Crewmembers and NVG Managers. It is recommended that night operations training be coordinated with the NightWatch platform to enhance the proficiency experience.

Initial and Annual NVG training for every NVG Manager will be from an industry recognized company and will cover all elements in FIRESCOPE's Night Flying Guidelines (NFG) ics-800 Jan 2021.

Certification

A list of appropriately trained and documented NVG Managers and NVG Crewmembers shall be sent to the Pacific Southwest Regional Helicopter Program Manager for certification.

Duties and Responsibilities

NVG Helicopter Pilots are an essential part of any aviation mission and must be made an integral part of the team effort whose objective is flight safety. The Pilot is in command of the aircraft and has ultimate responsibility, under both Federal Aviation Regulations and agency regulations, for the safety of the aircraft and its occupants the Pilots shall;

- Have a current interagency card showing qualification for Night Flying.
- Attend Night Flying training annually using the training syllabus in the NFG (ICS- 800).

If a night flight has not been accomplished in the last 25 nights, the Pilot shall maintain currency by participating in a currency flight which may utilize NVG crewmembers in ground fill training. This currency training will be documented. See contract for authorization of currency flights for vendor Pilots.

In addition to all duties and responsibilities listed in Chapter 2 of NWCG Standards for Helicopter Operations (NSHO), for Night Operations the Pilot shall:

- Complete Night Flying Operational Period Checklist
- Complete the GO/NO-GO Checklist for every NVG Flight Operation
- Sign the GO/NO-GO Checklist
- Helicopter Co-pilot shall meet all experience requirements and training stated in the contract Section C
- Attend Night Flying training annually in accordance with Firescope Night Flying Guidelines ICS-800

If a night flight has not been accomplished in the last 25 nights, the Co-pilot shall maintain currency by participating in a currency flight which may utilize NVG crewmembers in ground fill training. This currency training will be documented. See contract for authorization of currency flights for vendor Pilots.

NVG Helicopter Manager - an individual who has essential in-flight duties to ensure the safe operation of the aircraft during an unaided flight or NVG flight operation and/or has firefighter duties specifically on Initial Attack fires. The NVG Manager is the keystone to the safety and effectiveness of Helicopter Night Operations. In addition to what is stated in the NSHO for duties and responsibilities for Helicopter Manager, the NVG Manager must:

- Use and document risk management practices for all aspects of night operations.
- Ensure that trained and qualified personnel are assigned to duties.
- Develop and maintain effective communication with Night Flying cooperators.
- Work with cooperators to identify processes and procedures for improving Night Flying Operations.
- Be qualified as a Helicopter Manager (HMGB).
- Attend Crew Resource Management (CRM).
- Meet their corresponding Position Competencies stated in the Forest Service Fire and Aviation Qualifications Guide (FSFAQG).

Receive specialized NVG training and authorization to perform essential in-flight duties to ensure safe operation of the aircraft during NVG flight operations. Prior to flight complete and sign Appendix B forms. (Daily Operational Risk Assessment, Weather Observations, and NVG Mission GO/NO-GO Checklist.)

To stay current, the individual must perform in the position on a night flying operation every 14 days or complete currency training. Currency training will consist of mission-specific elements but can be simulated with the helicopter on the ground.

NVG Crewmembers - In addition to what is stated in the NSHO for duties and responsibilities for Helicopter Crewmember, the NVG Crewmember:

- Shall be a qualified or trainee Helicopter Crewmember.
- Receive specialized training in all subjects outlined in NFG.

To stay current, the individual must perform in the position on a night flying operation every 14 days or complete currency training. Currency training will consist of mission-specific elements but can be simulated with the helicopter on the ground.

Equipment

Night Vision Goggles (NVGs) are a head-mounted, lightweight, and self-contained binocular appliance that amplifies ambient light. NVG are worn by Pilots and essential aircrew members

to enhance the person's ability to maintain visual reference to the surface and see and recognize aerial hazards.

Night Vision Goggles must meet the requirements stated in the FAA's Technical Standard Order (TSO-C164) which requires the minimum performance standards (MPS) set forth in Section 2 of RTCA Document No. (RTCA/DO)-275 and Minimum Operational Performance Standards for Integrated Night Vision Imaging System Equipment, dated October 12, 2001.

All NVG equipment will be maintained to the manufacturer's specifications.

Operational Planning

The Incident Commander or Incident Management Team needs to be aware of the duty and hourly flight limitations. The only night helicopter mission approved is water/retardant-dropping and flights supporting this mission, i.e., transporting essential Helitack Crewmembers to the helispot to fill the helicopter tank and training flights.

- Flights will be conducted under VFR conditions.
- For aircraft equipped with an operational searchlight, no minimum illumination value will restrict the helicopter from flying at night.
- Pilot and Co-Pilot shall be well rested and have 10 hours off-duty preceding the start of their shift.
- Helicopter Pilot flight time (including day, night and NVG) will not exceed a total of six (6) hours per shift.
- Helibase and helispot location requirements are more stringent than in daylight (see below).
- Pilot night flying currency must be maintained.
- Forest Service Contract Helicopters only ground-based water-fill operations from pre-designated or approved helispots will be permitted (no hover-filling). For interagency night flying operations, the USFS utilizes FIRESCOPE for operational guidance. (January 2021 ICS-800)
- Approved helispots are to be flown by the Pilot in the daytime prior to use at night. This can be accomplished pre-season and during the season. Exemptions to this requirement is if the helispot is a lighted airport, or at an established water point. Prior to utilization the pilots shall be briefed on traffic patterns and hazards.
- The forests will be responsible for periodic checks and notification of any changes to the helispots.
- The NightWatch aircraft has no additional limitations for missions at night and shall adhere to agency policy and Federal Aviation Regulations.

Pre-initial attack

Initial Attack Planning should be accomplished prior to the incident so that night flight operations can focus on the mission. Aerial hazard maps of the forests will be available for use. Electronic devices (not all electronic devices are compatible with Night Vision Imaging Systems) can and should be used in replacement of paper maps.

- Helitack personnel and Pilots shall be familiar with the Night Flying Operations Risk Assessment and Mitigation Plan.
- Cooperation with other agencies in Night Flying is of utmost importance. Cross training and multi-agency training is encouraged to promote standardization and safety.
- Helitack personnel and Pilots shall participate with cooperators during night flying incident simulation drills.
- Chief Officers and Forest Aviation Officers shall keep telephone numbers of local cooperators that fly helicopters at night for coordination of helibases and helispots during initial attack. Helitack should have the capability to monitor Automated Flight Following (AFF) at temporary helibases.
- Ensure standard hose compliment and hose adaptors/fittings are onboard aircraft.
- The Daily Operational Risk Assessment & Go/No-Go Checklist shall be completed.
- Load Calculations will be completed daily and as required by policy.
- Manifests will be completed daily and as required by policy.
- When the helicopter is at the host base, the Forest Service shall provide the contractors with an adequate area for the pilots to rest.

Initial Attack

Night air operations are an appropriate use for NVG approved helicopters and Aerial Supervision aircraft. Certain procedures, which vary from daylight air operations, must be followed to assure the greatest margin of safety. During night operations a Temporary Flight Restrictions 91.137 (TFR) shall be ordered as needed or when requested by the Helicopter Manager; or assigned ATGS.

Briefing

At a minimum all pilots and Helitack personnel will be briefed on and understand:

- Night Flying organizational chart and responsibilities.
- Current and forecasted weather and illumination levels.

- Flight following procedures.
- TFR's.
- Other aircraft and their designators.
- Flight routes.
- Check-in points.
- Aerial hazards.
- Including known migratory bird paths.
- Communications Plan.
- Command
- Air/Ground
- Air Tactical
- Ground Tactical
- Contacts.
- Air to Ground Interactions between pilots and ground personnel.
- Reinforce the need for brevity in radio communications
- Traffic routes (vehicle, personnel, and aircraft).
- Helibase personnel assignments.
- Pilots warned of dangers of directing drops directly over crews.
- Reinforce the need to assess the risk versus gain and element continually.
- Communications and Coordination

Incident Ground Response

- Helitack chief of party is responsible for coordinating with the fuel truck driver and any associated chase vehicles. Coordination includes the location of the airport/waterpoint/helispot/helibase that the helicopter will be working out of and route to be taken.
- It is permissible, in times of limited staffing, to utilize a Non-NVG crewmember to serve as a driver. This person's only approved role is to be a driver or second person in the vehicle.

Aircraft Base Radio Operator (ABRO) and Helispot Manager

- Responsible for directing and coordinating take-offs and landings of helicopters at helibase and/or helispots.
- Coordination of take-offs and landings of helicopters shall use an uncongested/discrete channel.

ABRO and NVG Parking Tender

- NVG Parking Tenders are mobile and require an adaptor to connect the flight helmet with their handheld radio.
- NVG Parking Tender will have available lighted wands to assist in take-offs and landings.
- If it is determined that an NVG Parking Tender is not necessary, the position will not be filled. This decision will be made by the NVG Manager with Pilot concurrence.

NVG Helicopter Manager

- This person is the point of contact for the Incident Commander (IC), Incident Operations Section Chief and/or Air Operations Branch Director (AOBD), as well as the dispatch center requesting helicopter missions.
- Control over helicopter operations.
- Coordinates helicopter missions with the helibase, Operations Section Chief and/or AOBD.
- Coordination between the helicopter(s) and fireline personnel.
- When possible make positive communication with ground Point-of-Contact prior to takeoff.
- Ground radio traffic should be handled by the Division Group Supervisor when possible to eliminate confusion and limit the number of hand-offs of the aircraft.
- Emergency back-up communication between the helicopter(s) and helibase; can be met by monitoring Air Guard frequency.

Flight Following

- Flight Following will be accomplished per California Mobilization Guide (Chapter 28) standards for mission flight following.
- Flight following will be done by check-ins every 15 minutes. This can be accomplished by utilizing Automated Flight Following (AFF) and/or radio contact.
- Flight Following will be documented on the Form HBM-9 or utilizing local forms and procedures for aviation missions.
- During Night Flying Operations there will be an appropriately staffed dispatch center. Only the Angeles, San Bernardino, and Monte Vista ECC's are staffed 24-hours per day on a regular basis.
- Helitender should be equipped to monitor AFF when on remote helibases.

Helispots/Helibases

On helispots, one person will be designated as the Helispot Manager. That person is responsible for and will ensure the following:

- The Helicopter Manager and Pilot shall concur on the use of any new or existing helispots.
- The nighttime Pilot shall perform a daylight reconnaissance of the helispot prior to use. Exemptions to this requirement is if the helispot is a lighted airport, or at an established water point. Prior to utilization the pilots shall be briefed on traffic patterns and hazards.
- All required NVG positions filled by NVG qualified personnel.
- Communication plan shall be established and known with other helitack.
- All aerial hazards on the incident, helispots, and helibase vicinity shall be identified and briefed.
- Helicopter approach and departure paths established and known.
- Located in an area free of aerial hazards in the approach and departure paths.
- At a minimum, two trained NVG personnel will staff helispots.
- On multi-aircraft helispots, there shall be a minimum of 75 feet separation between rotor tips.
- Traffic control established (vehicle, personnel, and aircraft).
- Approach/departure paths and holding patterns shall be designated and known to all pilots.
- Dust abatement measures are taken.
- Appropriate size landing site (see NSHO Chapter 8) shall be secured
- 20’ x 20’ landing pad
- 90’ Safety Circle
- Ground fill operations shall be initiated.
- Landing site shall be properly illuminated with:
    - Four corners of each landing pad should be marked with a NVG compatible color light stick or another lighting device.
    - Flashing/emergency vehicle lights may be used as navigational aids or target designators but should be turned off upon pilot’s request.
- Parking Tenders shall have lighted wands to assist, as needed, in landings and takeoffs.
- Security measures (traffic control, bystander access, unauthorized personnel) shall be in place.

Water Drops

- A high-level reconnaissance for aerial hazards will be done over every fire.
- A “dry run” will be made before each series of drops in a new area looking for hazards and personnel.
- The siren will be used for live runs.
- The minimum altitude for water-drops will be fifty (50) feet above ground level (AGL) or canopy level, whichever is higher.
- Tight turns after drops should be avoided to prevent excessive rotor wash on the fire and to avoid spatial disorientation.
- Water-drops should not intentionally be made directly on fire suppression crews.

Emergencies

For appropriate fire protection and crash-rescue see NSHO Chapter 12. NVG personnel shall train for emergencies on helispots. NVG Personnel shall be trained in the proper use of fire extinguishers and crash rescue tools for aircraft fires. This training should include practical exercises extinguishing small Class B fires with different types of extinguishers.

- Crash/Rescue plan prepared and posted.
- All personnel briefed.
- Fire rescue equipment present and operational.

After Action Review

It is essential to learn from mistakes and to capitalize on successes. The price for failure can be exceptionally high, and the amount of effort put into successes is often left unrecognized. The objective of the After Action Review is to identify these successes and failures immediately. Once they have been recognized, further exploration allows the team to perfect its skills and be better prepared for future endeavors.
After each fire, an After Action Review (AAR) will be completed and documented in a log. An AAR for Aviation Operations follows the standard AAR format of what was planned, what happened, why it happened, and what can we do better next time, with some helpful additional talking points.

Appendix A-Forms

NIGHTTIME OPERATIONAL CHECKLIST

DATE: _____ TIME: _____ SUNSET: _____

PILOT: _____ MANAGER: _____

MIRRORS REMOVED:	☐
AIRCRAFT CABIN LOOSE ITEM CHECK	☐
NVG INSTALLED, CHECKED AND FOCUSED	☐
WEATHER/ILLUMINATION CHECK COMPLETE	☐
NIGHTTIME OPERATIONAL BRIEFING COMPLETED	☐

NVG MISSION GO/NO-GO CHECKLIST

MISSION: LOCATION: TIME:

	GO	NO-GO
MISSION NOTIFIED TO HOST CHIEF OFFICER:		
NIGHTTIME OPERATIONAL CHECKLIST COMPLETE: (Top section)		
WEATHER BRIEFING/MINIMUMS MET: (Appendix B)		
AERIAL HAZARD MAP/MTR REVIEWED:		
COMMUNICATIONS PLAN CONFIRMED:		
ALTERNATE LANDING SITE/AIRPORT IDENTIFIED: (Appendix B)		
OPERATIONAL RISK MANAGEMENT COMPLETED (Appendix C)		
MISSION DETAILS BRIEFED:		
PPE DONNED AND BUDDY CHECKED:		

SIGNATURE CONFIRMS THAT ABOVE CHECKLIST HAS BEEN COMPLETED

PILOT: MANAGER:

ENGAGEMENT CRITERIA TO BE ASSESSED CONTINUALLY

	Lives are or will be threatened.
	Structures are or will be threatened.
	Resources of significant economic values are or will be threatened.
	Excessively high suppression cost will be prevented.

One or more of the above four criteria shall be yes

Pre-Flight Weather Observation

To be completed prior to any nighttime flight

Date			**Time**			
PIC			**CO-Pilot**			
Manager			**Illumination**			
Dispatch Information						
Departure	**Ceiling**	**Visibility**	**Wind**	**Temperature**	**Dew Point**	**Altimeter**
Destination	**Ceiling**	**Visibility**	**Wind**	**Temperature**	**Dew Point**	**Altimeter**
En-route	**Ceiling**	**Visibility**	**Wind**	**Temperature**	**Dew Point**	**Altimeter**
Alternate	**Ceiling**	**Visibility**	**Wind**	**Temperature**	**Dew Point**	**Altimeter**

Operational Risk Management (ORM)

ORM Assessment Chart

To be completed by prior to any nighttime flight

Considerations	Value	Questions
CURRENCY (Last Flight) ➢ Less than 3 Days ➢ 3-7 Days ➢ Greater than 7 days	 +0 +3 +8	Have you been to this destination before? Yes / No How recently?
WEATHER ➢ 3,000' to 5 sm.	 +5	What are the weather conditions? How confident are you in knowing of the weather along the route? Have you thought through the entire mission?
NIGHT ➢ During any portion of flight	 +5	Are there any issues with the aircraft which may be a factor in the mission?
LOCATION OF FLIGHT ➢ ANF, BDF, CNF, LPF,SQF ➢ New Location ➢ Non Local	 +0 +3 +4	Do you feel fully rested and capable to accept the mission?
EARLY MORNING ➢ Flight time conducted between 0200 and 0500	 +1	Do you have any reservations about accepting this mission?
TOTAL		*A **TOTAL** of 20 or greater requires greater operational control or no-go*

Checklist for Multiple Resources, Helibase

1) Organization

An organization chart has been prepared and posted, showing responsibility for functions by the name of the person responsible. ☐

All helicopter related positions are assigned to personnel fully qualified for the position. ☐

Pilot, aircraft and support personnel meet agency requirements. ☐

2) Helibase Operations

Operating procedures have been established for helicopter movement around helibase. ☐

Procedures have been established for maintaining aircraft separation in the airspace surrounding helibase. ☐

Flight following procedures have been established. A qualified Helicopter Crewmember has been assigned to each helibase landing pad. ☐

Night Air Operations personnel are properly rested. ☐

3) Communications

A communications plan has been completed by the Night Helicopter Manager. ☐

One uncongested air-to-ground frequency has been established. ☐

Radio frequencies and call signs have been posted at the helibase and relayed to the pilots and all helibase personnel. ☐

Communications plan have been tested (including establishing contact with night ATGS) and are fully operational. ☐

All helicopter radios are compatible with the communication plan. ☐

4) Briefings

At a minimum, all Air Operations Division personnel and all pilots have been briefed on, and understand:

Weather/Illumination value ☐

Overhead responsibilities and authority. ☐

General operating procedures. ☐

Flight following procedures. ☐

Flight routes and check-in points. ☐

Other aircraft and designators. ☐

Area flight hazards. ☐

Radio frequency assignments and communications plan. ☐

Interactions between pilots and ground personnel. ☐

Helibase personnel assignments. ☐

Incident Action Plan review. ☐

Overhead and pilots warned of dangers of directing drops directly on crews. ☐

5) **Landing Areas**

Located in an area with a safe approach and departure paths. ☐

Free of aerial hazards. ☐

In an area that allows a minimum of 75 feet separation between rotor tips, on multi-aircraft operations. ☐

Traffic control (vehicle, personnel, aircraft) in place. ☐

Dust abatement measures are taken. ☐

Proper fueling techniques in place. ☐

6) **Crash/Rescue**

Crash/Rescue plan prepared and posted. ☐

All personnel briefed. ☐

Fire rescue equipment present and operational. ☐

Map showing flight routes, drop areas, checkpoints, ground access routes and flight hazards posted. ☐

7) **General**

One-half mile minimum visibility in areas of multiple helicopter operations. ☐

Optional Use Period for Helicopter

This checklist shall be used when outside normal Mandatory Availability Period.

Pilot in command's Interagency Pilot Qualifications Card is current for Night Flying. ☐

Aircraft Interagency Fire Card is current for Night Flying. ☐

Pilots are current with all appropriate FAR's including 61.57 (f)(1). ☐

All NVIS equipment complies with FAA/manufacture's required inspections. ☐

Contract Modification for an extension. ☐

Pilots and Helitack together complete at a minimum of one mock-up and live field exercise outlined in the National Night Air Operations Plan until the Manager's satisfied with the performance. ☐

Approval letter signed by the Region Aviation Officer. ☐

Within a year Helitack and Manager have all received NVIS training from an industry recognized company and had covered all elements in FIRESCOPE's Night Flying Guidelines (ICS-800). ☐

Appendix B- Initial Action Response Zone

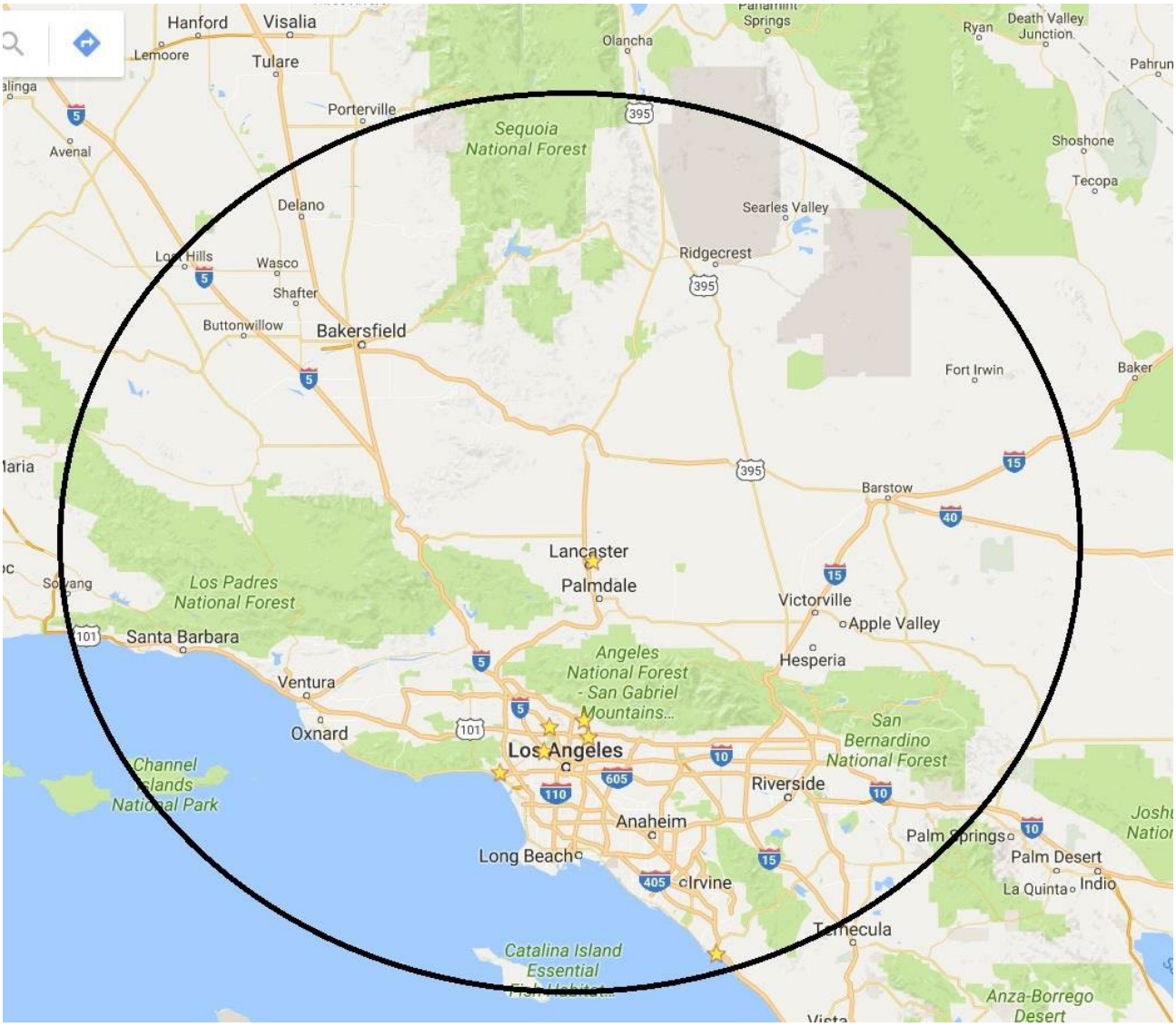
Region 5 Night Air Operations Mobilization and Notification Procedures

The Forest Service Night Air Operations (NAO) will support wildfire suppression on Forest Service-protected lands within and adjacent to the Angeles, Cleveland, and San Bernardino National Forests, the Southern half of the Los Padres and the Southern half of the Sequoia National Forests. The NAO aircraft will also support wildfire suppression including wildland-urban interface areas within and adjacent to the forests, within a range of their primary bases of one (1) hour flight time. The one (1) hour flight time is based on 90 nautical miles for the helicopter and 240 nautical miles for the air attack. Maps depicting a one (1) hour flight time for the NAO helicopter and air attack are on pages 5-6 of this procedure.

Before committing night air operation resources outside the above-approved locations, approval must be granted from the Operations Southern California, Geographic Area Coordination Center (GACC) Duty Chief. The approval or denial of the request will be documented on the ROSS order by the GACC. The Unit making the request must ensure there is adequate staffing in dispatch for the night operations, flight following, and in case of an emergency. The GACC Federal Aviation Duty Officer will ensure the appropriate dispatch organization is in place before the NAO aircraft launches to the incident.

If the air attack is dispatched outside of the pre-approved area and they return to their home base, they will be released each morning, reordered and reapproved by the GACC Duty Chief.

NAO Helicopter One (1) hour Response Map, 90NM from Fox Field



NAO Air Attack One (1) hour Response Map, 240 NM from Fox Field