



## INCIDENT COMMAND SYSTEM

### Night Flying Guidelines FIRESCOPE ICS 800

JULY 2023

This Document contains information relative to the Incident Command System (ICS) component of the National Incident Management System (NIMS). This is the same Incident Command System developed by FIRESCOPE. Additional information and documentation can be obtained from the following source:

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## SUMMARY

### PURPOSE:

Provide guidelines for the use of interagency aircraft for both night initial and extended attack operations on emergency incidents to enhance safety, operational effectiveness, and fiscal prudence.

### SCOPE:

This document provides guidelines for Pilots, Agency Aviation Managers, and Incident Command Personnel.

### AUTHORITY:

This document is designed to be a component of the recommendations from the Governor's 2004 Blue Ribbon Commission Section 1: Jurisdictional and Operational Barriers; Multi-Jurisdictional Recommendations; Item 5. The Commission recommends that all federal, state, and local forest firefighting agencies review their aircraft operation cut-off time and determine if there can be a window of flexibility to expand incident operational times, while at the same time taking into consideration flight crew safety. Additionally, these agencies should review technological capabilities to extend available aerial emergency response capabilities.

### BACKGROUND:

Lives, property, and natural resource values are threatened on a 24-hour basis. In specific situations, night vision image technology can be applied to aviation missions performed by public safety and natural resource agencies. Risk assessment and risk management principles coupled with the use of night vision image technology can reduce the risk factors and increase the mission effectiveness of night flying aircraft. It is the intent of this document to provide operational and informational guidelines and recommendations to best determine the safety and effectiveness of night flying operations.

Risk assessment and risk management guidelines are provided to assist in mission go/no-go decisions. The material and reference sources contained in this guideline will assist agencies in supporting night flying operations.

Operational guidelines are provided to aid in ensuring that risk mitigation is in place, specific operational procedures have been briefed and all parties have a clear understanding of the parameters of the operation.

### RECOMMENDATIONS:

**A comprehensive evaluation of the need to conduct night flight operations should be performed by the agency having jurisdiction (AHJ).** The intent of this

document is to serve as a guideline(s) for interagency night flying operations. If a night flying operation can be justified, the information contained in this document is recommended to be used for both evaluation of a need to perform these operations and the implementation of the operations contained within the scope of this document. It is the recommendation that all interagency night flying operations be conducted within the guidelines set forth in this document.

## **DEFINITION OF NIGHT:**

The FAA defines night flight in 14 CFR Part 1 Definitions and Abbreviations. Night means the time between the end of evening civil twilight and the beginning of morning civil twilight as published in the Air Almanac, converted to local time.

### **A. Night Aerial Supervision Considerations**

- 1. When is Aerial Supervision required;** in accordance with SAS; 3 or more helicopters
  - Marginal visibility
  - Requested by tankers, helicopters, ATGS, ASM
  
- 2. FTA aircraft saturation.**
  - What is the night FTA aircraft saturation point?
  - More aircraft is not necessarily better - especially with dissimilar aircraft. Night fire suppression inherently increases risk exposure – this is mitigated by reducing the number of participating aircraft in the FTA.
  - Introduction of different agencies
  - Ground fill versus snorkel operations (operational tempo/pace)
  - Geographic location of dips and ground fill points (focus on aircraft congestion and routes to/from these points)
  - IC and OSC - routinely examine airspace saturation.

IA Strategy: ICs query agency aircraft on-scene to determine conditions.

EA Deconfliction Strategies: assign aircraft within an area within the FTA; establish clear routes and fences.

### **B. Night Vision Technology Standards**

- 1. Aircraft Lighting Modifications**
  - Modification of aircraft lighting should be compatible with the class of Night Vision Goggles (NVG) used. See NFG Informational Appendix 1 Spectral Sensitivity.
  - All work performed should meet the STC Standards.

- Aircraft lighting modifications must meet the guidelines of the Radio Technical Commission for Aeronautics (RTCA) DO-275 Minimum Operational Performance for Integrated Night Vision Imaging Systems RTCA DO-275 is available at RTCA.org.
- Military Federal Excess Property aircraft that have been modified for NVG will need to have Military Specification (MILSPEC) compatibility with the class of NVG being used.

## 2. Night Vision Goggles (NVG)

- **Technical Standards:** The RTCA technical standards contained in DO-275 are used by the FAA for NVG technical compliance. FAA Technical Standard Order TSO-C164 discusses NVG technical standards.
- **Maintenance Procedures:** A six-month maintenance interval is standard. NVG inspection intervals shall follow manufacturer's recommendations and shall comply with appropriate regulatory agency.

## PILOT AND CREWMEMBER TRAINING STANDARDS

### PILOT EXPERIENCE STANDARDS:

	Minimum Hours
Total Helicopter Pilot in Command (PIC)	1,500 hours
Helicopter, preceding 12 months	100 hours <small>Note 1</small>
Total PIC Weight Class	100 hours <small>Note 2</small>
Total PIC Weight Class, preceding 12 months	10 hours <small>Note 2</small>
Make and Model	50 hours <small>Note 3</small>
Low Level and/or Mountain Flying	200 hours

Note 1: If less than 100 hours during the preceding 12 months – a pilot proficiency verification check (card checkride) is required. This does not apply for initial carding.

Note 2: Weight Class Definition. Small Aircraft is 12,500 lbs. or less; Large aircraft is greater than 12,500 lbs.

Note 3: May be reduced to 25 hours with proof of aircraft manufacturer-approved flight training

### ADDITIONAL REQUIREMENTS FOR NIGHT OPERATIONS:

	Minimum Hours
Helicopter PIC Night Hours (unaided)	50 hours
Helicopter PIC Night Hours in Type (unaided)	10 hours
Night Vision Goggle Flight Training	8 hours
Night Vision Goggle Ground School	8 hours

Minimum Initial Night/NVG requirements as defined in 14 CFR Part 61.31

Minimum currency requirements as defined in 14 CFR Part 61.57

### NIGHT VISION GOGGLE (NVG) INITIAL TRAINING

14 CFR Part 61.31 includes the following:

- Crew Resource Management
- Aero Medical Factors

- Night Vision Goggle Operations
- Aircraft Lighting Systems
- NVG Night Terrain Interpretation
- Agency Specific Procedures

Pilot initial flight instruction should include the following as a minimum:

- Pilot Basic Flight Maneuvers
- Pilot Emergency Procedures
- Agency Specific Missions
- Pilot Check Flight

### **NIGHT VISION GOGGLE (NVG) RECURRENT TRAINING**

Training and currency shall be accomplished in accordance with 14 CFR 61.57.

For current NVG and equipment standards, reference the FAA website. [www.faa.gov/library/manuals](http://www.faa.gov/library/manuals). Select the 2004 Flight Standards Handbook for Air Transportation (HBAT).

It is recommended that Helicopter Pilot NVG training standards conform to the FAA Commercial Pilot Practical Test Standards for Rotorcraft FAA-S-8081-16B.

## Night Operations

### PRE-PLANNING (POLICY RECOMMENDATIONS)

Agencies need to evaluate and implement a night flying program that adheres to their individual approach to night flying to fulfill their mission statements and to ensure their jurisdictional authority is not compromised.

However, it should also be the understanding of the cooperative agencies that once interagency aircraft are requested, policy of the Agency Having Jurisdiction (AHJ) of the incident shall be followed. FIREScope recommends that the interagency guidelines be utilized in concurrence of the AHJ policies to improve safety and increase efficient interagency operations. This will most likely occur during the “Extended Attack” phase of an incident.

The primary issue to resolve is how agencies will safely and effectively work with each other when there are differing policy and procedural issues such as:

- Geographic responsibilities that may result in aircraft night flying over another agency’s jurisdictional area due to initial action zone overlap.
- Functional responsibilities that may be overlapping. (Such as emergency medical night flight provided by a local, state, federal, military or air ambulance on local, state, or federal lands) This may occur away from initial action zones.
- In federal and state lands, significant legal issues may be created.

It is recommended that night flying policy and procedural conflicts be resolved by executive staff members with input from agency legal departments. Night flight policy and procedural issues should be codified with cooperating agencies so incident operations are not impaired. Methodologies that can be considered are:

- Pre-Attack Plans
- Memorandums of Understandings
- Letters of Agreement
- Changes in agency policy and procedure manuals
- In Section E of this guideline, Night Operations Position Checklist for the Field Operations Manual ICS 420-1 is provided to help resolve issues during incident operations

### INITIAL ATTACK (POLICY RECOMMENDATIONS)

Night aerial initial attack operations should not occur before verification of at least one of the following Night Flying Operational Assessment criteria is met:

- Human lives are or will be threatened.
- Structures are or will be threatened.

- Resources or infrastructures of significant value are or will be threatened.
- Action may limit significant fire growth

The following are safety considerations prior to conducting night aerial fire suppression operations:

- Pilots shall become familiar with the area of operations.
- Familiarization is accomplished by conducting a day reconnaissance flight; and/or
- Receive an air-to-air briefing; and
- An escorted flight through the operating areas with another operator/agency aircraft, highlighting all obstacles and hazards.

Each agency is ultimately responsible for implementing measures to define qualified flight crew familiarity within an operating area. It is recommended aircraft are omitted from night operations until area familiarization is accomplished.

On Initial Attack, the AHJ should refer to local standard operating procedures and guidelines.

## **EXTENDED ATTACK (POLICY RECOMMENDATIONS)**

Nighttime aerial firefighting operations conducted in the second and subsequent operational periods shall meet the Night Flying Operational Assessment criteria:

- Human lives are or will be threatened.
- Structures are or will be threatened.
- Resources or infrastructures of significant value are or will be threatened.
- Action may limit significant fire growth

The following are safety considerations prior to conducting night aerial fire suppression operations:

- Pilots shall become familiar with the area of operations.
- Familiarization is accomplished by conducting a day reconnaissance flight; and/or
- Receive an air-to-air briefing; and
- An escorted flight through the operating areas with another operator/agency aircraft, highlighting all obstacles and hazards.

Each agency is ultimately responsible for implementing measures to define qualified flight crew familiarity within an operating area. It is recommended aircraft are omitted from night operations until area familiarization is accomplished.

Flight crews (pilots) shall be familiar with the area to be flown, either flown during the day, and/or receive an air-to-air briefing as well as being led-in and shown all hazards by another agency/operator that has previous experience over the fire.

Flight crews (pilots) shall not be expected to fly at night over terrain with which they are not intimately familiar. Individual agencies need to define what they will consider as flight crew/pilot familiarity.

Agencies that cover large geographic areas may find it necessary to require their flight crews/ pilots to perform a detailed daylight reconnaissance of the operational area prior to night operations.

Night extended attack air operations will require additional flight, maintenance, and logistical personnel to ensure continuous operations while complying with flight time and duty day limitations.

Daily NVG flight hours limitations should be defined by the AHJ.

## RISK ASSESSMENT

### OVERVIEW

This model allows for a time critical risk assessment for the Incident Commander(s) to plan, organize, staff, direct, control, and evaluate the actions necessary to conduct safe and effective aerial night operations. This shall be the process to identify those inherent risks measured against the appropriate mitigations in place. This model can be applied in a variety of situations, from program to pre-mission risk assessment. It is not intended to replace pre-mission planning, briefings and debriefings, or post action follow-up, but provide an efficient risk management tool for dynamic environments.

Making risk decisions at the appropriate level establishes clear accountability. Those accountable for the success or failure of a mission must be included in the risk decision process. The higher the risk the more mitigation may be necessary. If significant differences in the same rating categories are identified, all team members will re-evaluate the mission and address any mitigation prior to continuing with the mission.

Risk assessment provides a more general analysis of the operational system and provides a qualitative rating scale for each of the categories that correspond to the identified areas of risk. It is important to remember that risk management is a process that continues throughout the mission and each assessment model allows management to set the acceptable risk standards as they apply to each mission.

Discussion is critical to understanding the risks and how they will be managed. Additional information on risk management can be found in NWCG Standards for Helicopter Operations (NSHO).

### APPLICATION

The goal of this Flight Risk Assessment Tool (FRAT) is to identify risks. Once these risks are identified crews should generate a mitigation strategy for the highest risk elements. This is a living document that will evolve as it is used by crews to evaluate and mitigate risks.

### STEPS

1. As a crew, discuss each risk element and possible mitigating strategies at the beginning of a duty shift. Mark the block that corresponds with the determined risk level.
2. Throughout the day – update periodically if any category elements change.
3. Continue to move through the FRAT marking all risk elements.

4. Overall risk is the culmination of the elements. There is no set rule on what a crew determines their overall risk to be, and it is left up to the crew's discretion.

**Note:** *This is a subjective estimate of risk.*

## **SUPERVISION**

Supervisory Control considers how qualified the supervisor is and whether effective supervision is taking place. Even if a person is qualified to perform a task, supervision acts as a control to minimize risk. The higher the risk, the more the supervisor needs to be focused on observing and checking. A supervisor who is actively involved in a task is easily distracted and should not be considered an effective safety observer in moderate to high-risk conditions.

## **PLANNING**

Planning and preparation should consider how much information you, and other resources that you may be interacting with, have; how accurate it is, and the amount of time available to plan for and evaluate the existing and emerging conditions.

## **CONTINGENCY RESOURCES**

What contingency is in place if the plan experiences failure? Backup resources that can assist if needed should be identified. An alternate plan to meet the incident objectives shall be evaluated.

## **COMMUNICATION**

Evaluate how well all personnel involved in the operation are briefed and communicating (Crew Resource Management). An evaluation of the communication systems that are available should include the technical capability, infrastructure, operational reliability, and organizational culture.

## **REQUIRED CONDITION**

The selection of individual resources, including key Air Operations overhead positions, should evaluate the character and competence of the individuals used; specifically addressing their experience and qualifications in night operations. Individuals may occasionally need to be replaced during the operation. Replacement will require an assessment of any new team members and how they will be able to interact with those already engaged.

## **MISSION EFFECTIVENESS**

Does a high degree of success in achieving incident objectives exist without burdensome procedures or other external factors?

## **ENVIRONMENT**

Consider factors affecting the performance of personnel, equipment, and the organization, including time of day, wind and other weather conditions, topography, temperature, and altitude. Evaluate specific factors such as narrow canyons, urban infrastructure, forest canopy, and site selection. These factors should be eyed with caution as the operational environment is very dynamic.

## **INCIDENT COMPLEXITY**

Evaluate the experience level of the crews. Determine how many aircraft are involved. Understand that the longer one is exposed to a hazard, the greater the risks. The situation evaluation includes considering how long the environmental conditions will remain stable and a determination of the complexity of the work.

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**APPENDIX A:**  
**NIGHT OPERATIONS – FLIGHT RISK ASSESSMENT**  
**WORKSHEET**

## NIGHT OPERATIONS – FLIGHT RISK ASSESSMENT WORKSHEET

Category	Risk Elements	Low	Medium	High
<b>Crew</b>	Composition and Experience	Current and Proficient <input type="checkbox"/>	Meets Currency <input type="checkbox"/>	Does not meet currency <input type="checkbox"/>
<b>Crew</b>	Mission Specific Proficiency (hoists crew transport, fire suppression, etc.)	Less than 30 days <input type="checkbox"/>	30 - 90 days <input type="checkbox"/>	Greater than 90 days <input type="checkbox"/>
<b>Crew</b>	Fitness, Flight and Duty Limitations (meets agency policy)	No Issues <input type="checkbox"/>	Minor issues present that can be mitigated with crew awareness or actions. <input type="checkbox"/>	Major issues present that exceed policy. <input type="checkbox"/>
<b>Aircraft</b>	Fully Mission Capable	No Degraded Equipment <input type="checkbox"/>	Mission-specific degraded equipment (snorkel, hoist, etc.). <input type="checkbox"/>	Minimum Equipment list items not functioning <input type="checkbox"/>
<b>Aircraft</b>	Hours Before Maintenance Due	Projected flight hours will not reach maintenance due <input type="checkbox"/>	Projected flight hours likely fall between maintenance due time and DNE <input type="checkbox"/>	Projected flight hours will exceed maintenance DNE <input type="checkbox"/>
<b>Environment</b> <b>Day</b>	Current and Forecasted Conditions	<b>All</b> the following: 1. >1000 AGL broken/overcast 2. Visibility >5sm 3. Winds <25 kts 4. Gust spread <10 kts <input type="checkbox"/>	<b>Any</b> of the following: 1. 700-1000 AGL broken/overcast. 2. Visibility <5sm 3. Winds 25-35 kts 4. Gust spread <15 kts 5. Moderate turbulence 6. Thunderstorms within 10-20NM <input type="checkbox"/>	<b>Any</b> of the following: 1. <700 AGL broken/overcast. 2. Visibility <2sm 3. Winds >35 kts 4. Gust spread >15 kts 5. Severe turbulence 6. Thunderstorms within 10NM <input type="checkbox"/>
<b>Environment</b> <b>Night/NVG</b>	Current and Forecasted Conditions	<b>All</b> the following: 1. >3000 AGL broken/overcast 2. Visibility >5sm 3. Winds <25 kts 4. Gust spread <10 kts 5. Lunar Illumination >40% <input type="checkbox"/>	<b>Any</b> of the following: 1. 700-1000 AGL broken/overcast. 2. Visibility <5sm 3. Winds 25-35 kts 4. Gust spread <15 kts 5. Moderate turbulence 6. Thunderstorms within 10-20 NM 7. Lunar Illumination 23-40% <input type="checkbox"/>	<b>Any</b> of the following: 1. <700 AGL broken/overcast. 2. Visibility <2sm 3. Winds >35 kts 4. Gust spread >15 kts 5. Severe turbulence 6. Thunderstorms within 10NM 7. Lunar Illumination <23% <input type="checkbox"/>
<b>Planning</b>	Mission and Execution	Day VFR Fire Suppression, Point-to-Point, Crew Transport <input type="checkbox"/>	Day VFR Hoist, PSD, Aerial Torch, Night Fire Suppression, Night Hoist <input type="checkbox"/>	5% or less power margin (High DA; high gross weight) <input type="checkbox"/>
<b>Comms</b>	Equipment and Supervision	Aerial Supervision is on-scene, FTA established, all radios and ICS functioning properly. <input type="checkbox"/>	Responding aircraft assumes aerial supervision, and/or 1 VHF-FM is inoperable. <input type="checkbox"/>	Responding fire suppression aircraft assumes aerial supervision and more than (1) radio is inoperable. <input type="checkbox"/>
<b>Overall Risk</b>	Crew discusses and agrees on overall risk level and highest element.	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>	<input style="width: 50px; height: 20px;" type="text"/>

Date \_\_\_\_\_ Aircraft \_\_\_\_\_ Location \_\_\_\_\_

Highest Risk Element \_\_\_\_\_

Crew Determined Overall Risk \_\_\_\_\_

Initial Attack (IA)/Extended Attack (EA) Green – GO

Risk Element	Approval
Low	Crew
Medium	Crew; Notify next level Chain of Command
High	Next level Chain of Command

**IA Yellow** – crew attempt to mitigate; requires next level notification when time allows (does not require approval to respond)

**EA Yellow** – crew attempt to mitigate; requires next level notification **prior** to dispatch (does not require approval)

**IA/EA Red** – **requires** next level approval.

## Overview

The goal of this Flight Risk Assessment Tool (FRAT) is to identify risks based on known factors and communicate these risks in comparison to possible gains. Once these risks are identified, crews should generate a mitigation strategy for the highest risk elements.

## Steps

1. As a crew, discuss each risk element and possible mitigating strategies at the beginning of a duty shift. Mark the block that corresponds with the determined risk level.
2. Throughout the day – update periodically if any category elements change.
3. Continue to move through the FRAT marking all risk elements.
4. Overall risk is the culmination of the elements. There is no set rule on what a crew determines their overall risk to be, and it is left up to the crew's discretion.

**APPENDIX B:**  
**NIGHT OPERATIONS POSITION CHECKLIST – ICS420-1**  
**SUPPLEMENT**



**FIRESCOPE: Night Operations – Night Operations – Position Checklist ICS  
420-1 Supplement  
Page 1 of 2**

### INCIDENT COMMANDER

- Approve night flying operations within jurisdictional authority.

### INFORMATION OFFICER

- Obtain information on the night flying operation such as number and type of aircraft, areas of operation, and mission objectives.
- Disseminate information as required.

### SAFETY OFFICER

- Ensure that the night flying operation is justified in risk versus gain and will be essential in the accomplishment of the incident objectives.
- Address safety concerns of participating agencies.

### LIAISON OFFICER

- Coordinate with Command and General Staff personnel on procedural and operational issues of the night flying operation.
- Resolve inter-agency policy issues that arise from night flying operations by consultation with agency representatives.

### AGENCY REPRESENTATIVE

- Advise Liaison Officer of agreement with, or objection to, a night flying operation.
- Coordinate night flying issues with home agency personnel and the Incident Commander.

### OPERATIONS SECTION CHIEF

- Approve night flying operations in conjunction with the Incident Commander.
- Advise Branches and Divisions of night flying missions.
- Ensure that Division/Branch Checklist/Worksheets are completed.
- Confirm that policy and procedural issues between agencies have been resolved by consultation with the Liaison Officer and the Air Operations Branch Director.
- Ensure that the night flying missions are justified and essential to accomplishing the incident objectives.



## **FIRESCOPE: Night Operations – Night Operations – Position Checklist ICS 420-1 Supplement Page 2 of 2**

### **AIR OPERATIONS BRANCH DIRECTOR**

- Advise the Operations Section Chief if night flying operations are available. Perform risk assessment and risk management as the situation dictates.
- Confirm that compatible night flying policy and procedures are being applied by the agency that intend to fly at night. This may include Go/No-Go checklists and/or clearly defined areas of operation.
- Coordinate and resolve inter-agency policy/procedural issues with the incident staff prior to commencing night flying operations.
- Ensure the quality completion of the Water Point Checklist/Worksheet.

### **AIR SUPPORT GROUP SUPERVISOR**

- Develop a shift plan for the aircraft and helitack crews.
- Ensure that the aircraft have 24-hour logistical support.

### **AIR TACTICAL GROUP SUPERVISOR/ HELICOPTER COORDINATOR**

- Ensure that positive air traffic control can be maintained.
- Monitor air to ground and air to air for proper radio discipline.
- Keep ground unit expectations in touch with reality. Do not let high expectations pressure the pilots.
- If the night flying missions are not effective, coordinate with the Air Operations Branch Director/Operations Section Chief to change the mission operational area or terminate the night flying.

### **HELIBASE MANAGER / HELISPOT MANAGER**

- Manager Complete Go/No-Go checklist if required by agency policy.
- Ensure that the Takeoff and Landing Controller (TOLC) has communications with the assigned aircraft.
- Provide for extra security at the Helibase/Helispot. This should include vehicle traffic, civilians and assigned personnel travel routes.
- Provide for Helibase/Helispot light controls. This includes landing pad marking and flashlight, headlamp, and headlight control measures. (Reference NFG Informational Appendix 1 Spectral Sensitivity item A Headlights/Flashlights)
- Conduct all operations at a slower more methodical pace. Be observant for signs of fatigue in personnel throughout the nighttime operational period.

**APPENDIX C:**  
**NIGHT OPERATIONS POSITION DESCRIPTION**

Incident Management Teams having jurisdictional authority to conduct night flying operations shall set the following goals:

1. Provide guidelines on how the strategy, tactics, and incident objectives can be managed in context of a night flying operation by employing the Interagency guidelines contained within this document.
2. Provide guidelines to all personnel and any additional ICS position responsibilities in preparation for, and during night operations.



## **FIRESCOPE: Night Operations – Position Description**

### **ICS 420-1 Supplement**

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#### **INCIDENT COMMANDER**

Approve night flying operations within jurisdictional authority.

#### **INFORMATION OFFICER**

Obtain information on the night flying operation such as number and type of aircraft, areas of operation, and mission objectives. Disseminate information as required.

#### **SAFETY OFFICER**

Ensure that the night flying operation is justified in risk verses gain and will be essential in the accomplishment of the incident objectives. Address safety concerns of participating agencies.

#### **LIAISON OFFICER**

Coordinate with Command and General Staff personnel on procedural and operational issues of the night flying operation. Resolve inter-agency policy issues that arise from night flying operations by consultation with agency representatives.

#### **AGENCY REPRESENTATIVE**

Advise Liaison Officer of agreement with, or objection to, a night flying operation. Coordinate night flying issues with home agency personnel and the Incident Command Staff.

#### **OPERATIONS SECTION CHIEF**

Approve night flying operations in conjunction with the Incident Commander. Advise Branches and Division of night flying missions. Ensure that individual ICS position responsibilities are addressed. Confirm that policy and procedural issues between agencies have been resolved by consultation with the Liaison Officer and the Air Operations Branch Director. Ensure that the night flying missions are justified and essential to accomplishing the incident objectives.

#### **AIR OPERATION BRANCH DIRECTOR**

Advise the Operations Section Chief if night flying operations are available. Perform risk assessment and risk management as the situation dictates. Confirm that compatible night flying policy and procedures are being applied by the agency that intend to fly at night. This may include Go/No-Go checklists and/or clearly defined areas of operation. Coordinate and resolve inter-agency policy/procedural issues with the incident staff prior to commencing night flying operations.

#### **AIR SUPPORT GROUP SUPERVISOR**

Develop a shift plan for the aircraft and helitack crews. Ensure that the aircraft have 24-hour logistical support.



## AIR TACTICAL GROUP SUPERVISOR/HELICOPTER COORDINATOR

Ensure that positive air traffic control can be maintained. Monitor air to ground and air to air for proper radio discipline. Keep ground unit expectations in touch with reality. Do not let high expectations pressure the pilots. If the night flying missions are not effective, coordinate with the Air Operations Branch Director/Operations Section Chief to change the mission operational area or terminate the night flying operation.

## HELIBASE MANAGER/HELISPOT MANAGER

Complete Go/No-Go checklist if required by agency policy. Ensure that the Takeoff and Landing Controller (TOLC) has communications with the assigned aircraft. Provide for extra security at the Helibase/Helispot. This should include vehicle traffic, civilians and assigned personnel travel routes.

Provide for Helibase/Helispot light controls. This includes landing pad marking and flashlight, headlamp, and headlight control measures.

(Reference NFG Informational Appendix 1 Spectral Sensitivity item A Headlights/Flashlights) Conduct all operations at a slower more methodical pace. Be observant for signs of fatigue in personnel throughout the nighttime operational period.

**APPENDIX D:**  
**NIGHT OPERATIONS – AIR OPERATIONS BRANCH**  
**DIRECTOR CHECKLIST**



**FIRESCOPE: Night Operations –  
Air Operations Branch Director Checklist**

Page 1 of 5

The following checklist should be considered as the minimum requirements for this position. Note that some of the tasks are one-time actions; others are ongoing or repetitive for the duration of the incident.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

Check Box	Task
<input type="checkbox"/>	Confirm that night flying helicopters have been assigned and have “A” numbers attached. Obtain briefing from Operations Section Chief or Incident Commander.
<input type="checkbox"/>	Confirm need for night helicopter operations based on required conditions set forth in the Operating Agreement for Aided Low-Level Night Operations between Agency and Cooperator.
<input type="checkbox"/>	Risk Assessment has been completed, hazards identified and mitigated for night operations, and approved by Agency Incident Commander.
<input type="checkbox"/>	Establish line of authority and procedures for decision making.
<input type="checkbox"/>	Go/No-Go Checklist completed and signed by Cooperator.



**FIRESCOPE: Night Operations –  
Air Operations Branch Director Checklist**  
Page 2 of 5

<b>Check Box</b>	<b>Task</b>
<input type="checkbox"/>	Determine need for subordinate staff (ASGS, HEB1, etc.).
<input type="checkbox"/>	Consider needs for aerial supervision.
<input type="checkbox"/>	Request declaration (or cancellation) of restricted air space area, (FAA Regulation 91.137).
<input type="checkbox"/>	Determine coordination procedures for use by air organization with ground Branches, Divisions or Groups.
<input type="checkbox"/>	Evaluate fill / fuel locations.
<input type="checkbox"/>	Determine staffing needs with Cooperator(s) for fill / fuel locations.



**FIRESCOPE: Night Operations –  
Air Operations Branch Director Checklist**  
Page 3 of 5

<b>Check Box</b>	<b>Task</b>
<input type="checkbox"/>	Establish procedures for emergency reassignment of aircraft, including air rescue.
<input type="checkbox"/>	Coordinate with Geographic Area Coordination Center (GACC) through normal channels on incident night air operations.
<input type="checkbox"/>	Inform the Air Tactical Group Supervisor of planned night operations.
<input type="checkbox"/>	Consider requests for non-tactical use of incident aircraft.
<input type="checkbox"/>	Coordinate with Medical Unit, Communications Unit, and Safety Officer.
<input type="checkbox"/>	Resolve conflicts concerning non-incident aircraft / news media.



**FIRESCOPE: Night Operations –  
Air Operations Branch Director Checklist**  
Page 4 of 5

<b>Check Box</b>	<b>Task</b>
	Determine aircraft and support equipment available from cooperator in order to support night helibase.
	Security concerns
	Logistics
	Brief subordinate staff
	Debrief personnel and pilots and make assignment and staffing adjustments, as necessary.
	Determine aircraft status



**FIRESCOPE: Night Operations –  
Air Operations Branch Director Checklist**  
Page 5 of 5

<b>Check Box</b>	<b>Task</b>
	Ensure completion of After-Action Summary for Helicopter Night Operations, Helicopter Drop Evaluations, and ensure copies are sent to the Helibase Manager
	Obtain status and availability of aircraft and personnel for the next and future operational periods.

**APPENDIX E:**  
**NIGHT OPERATIONS – AIR OPERATIONS BRANCH**  
**DIRECTOR GUIDELINES**



## **FIRESCOPE: Night Operations – Air Operations Branch Director Guidelines**

Page 1 of 2

The following guidelines should be considered as the minimum requirements for this position.

Note that some of the tasks are one-time actions; others are ongoing or repetitive for the duration of the incident.

1. Confirm that night flying helicopters have been assigned and have “A” numbers attached. Obtain briefing from Operations Section Chief or Incident Commander.
2. Confirm need for night helicopter operations based on required conditions set forth in the Operating Agreement for Aided Low-Level Night Operations between Agency and Cooperator.
3. Risk Assessment has been completed, hazards identified and mitigated for night operations, and approved by Agency Incident Commander.
4. Establish line of authority and procedures for decision making.
5. Go/No-Go Checklist completed and signed by Cooperator.
6. Determine need for subordinate staff (ASGS, HEB1, etc.).
7. Consider needs for aerial supervision.
8. Request declaration (or cancellation) of restricted air space area, (FAA Regulation 91.137).
9. Determine coordination procedures for use by air organization with ground Branches, Divisions or Groups.
10. Evaluate fill/fuel locations.
11. Determine staffing needs with Cooperator(s) for fill / fuel locations.
12. Establish procedures for emergency reassignment of aircraft, including air rescue.
13. Coordinate with Geographic Area Coordination Center (GACC) through normal channels on incident night air operations.
14. Inform the Air Tactical Group Supervisor of planned night operations.
15. Consider requests for non-tactical use of incident aircraft.
16. Consider nighttime air rescue needs. Coordinate with Medical Unit, Communications Unit, and Safety Officer.
17. Resolve conflicts concerning non-incident aircraft / news media.



## **FIRESCOPE: Night Operations – Air Operations Branch Director Guidelines**

Page 2 of 2

18. Determine aircraft and support equipment available from cooperator to support night helibase.
19. Security concerns
  - a. Helibase
  - b. Fill / Fuel sites
  - c. Logistics
  - d. Land use and water agreements
  - e. Facilities
  - f. Subsistence
  - g. Fuel source
  - h. Ground support
20. Brief subordinate staff
  - a. Incident and work objectives, schedules, mission requirements, priorities, time schedules, and process for briefings and debriefings.
  - b. Work-site locations, status of aircraft, crews and equipment assigned or ordered. Debrief personnel and pilots and make assignment and staffing adjustments, as necessary.
  - c. Identify safety issues and hazards and mitigate them. Determine aircraft status.
  - d. Identify pilot and aircraft mission capabilities (certification).
  - e. Initiate system to monitor flight/duty hour limitations and ensure they are not exceeded.
21. Ensure completion of After-Action Summary for Helicopter Night Operations, Helicopter Drop Evaluations, and ensure copies are sent to the Helibase Manager.
22. Obtain status and availability of aircraft and personnel for the next and future operational periods.
23. Consider nighttime air rescue needs. Coordinate with Medical Unit, Communications Unit, and Safety Officer.
24. Work-site locations, status of aircraft, crews and equipment assigned or ordered. Debrief personnel and pilots and make assignment and staffing adjustments, as necessary.

**APPENDIX F:**  
**NIGHT AIR OPERATIONS - DIVISION / BRANCH BRIEFING**  
**WORKSHEET CHECKLIST**



**FIRESCOPE: Night Operations – Division/Branch Briefing Worksheet**  
**Checklist**  
 Page 1 of 4

This document is intended as a tool to provide guidance in conducting a comprehensive briefing for fire line personnel assigned to branches and divisions where helicopter operations will be conducted at night. Each of the items on this checklist must be determined, addressed and/or established in coordination with the Air Operations Branch Director prior to commencing interagency nighttime air operations. Branch Directors and Division Supervisors shall ensure that all affected fire line personnel receive a “Night Air Operations Briefing” in order to ensure that personnel from every agency involved understand the details of the process and controls being used during that operational period.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

**AIRCRAFT ASSIGNMENT**

<b>Check Box</b>	<b>Aircraft Assignment</b>
	Determine the number, types and call signs of helicopters assigned to night operations.
	Identify the Divisions where helicopters will be assigned.
	Establish the time aircraft will become available and time when night air operations will end.



### AIRCRAFT TACTICAL OBJECTIVES

<b>Check Box</b>	<b>Aircraft Tactical Objectives</b>
	Determine the type of missions to be flown during the nighttime operational period.
	Determine the suppression tactic(s) that will be used by helicopters during nighttime operational period.

### COMMUNICATION

<b>Check Box</b>	<b>Communication</b>
	Determine appropriate frequency for Air-to-Ground communication.
	Determine who may communicate directly with the helicopters, HLCO or ATGS.



### CREW MEMBER ACCOUNTABILITY

<b>Check Box</b>	<b>Crew Member Accountability</b>
	Establish a method for identifying all personnel in the area of nighttime air operations.
	Address the appropriate use of strobe lights to identify a particular crew or individual.

### TARGET DESCRIPTION

<b>Check Box</b>	<b>Target Description</b>
	Address the use of GPS coordinates for target description.
	Identify obvious landmarks that can be used as reference points for target description.
	Address the use of strobe lights as a means for target description.
	Address the use of, or restriction of the use of laser pointing devices.



### DROP ZONE SAFETY PRECAUTIONS

<b>Check Box</b>	<b>Drop Zone Safety Precautions</b>
	Establish a method for verifying that the drop zone is clear of personnel before each drop.

### AIRCRAFT REASSIGNMENT

<b>Check Box</b>	<b>Aircraft Reassignment</b>
	Establish a method and level of authority for reassigning aircraft during the nighttime operational period.
	Establish a Rescue/Med-Evac Response Plan for the nighttime operational period.

**APPENDIX G:**  
**NIGHT OPERATIONS – DIVISION / BRANCH BRIEFING**  
**GUIDELINES**



This document is intended to provide information and guidelines to assist in planning interagency nighttime air operations using the FIRESCOPE Night Operations – Division/Branch Briefing Worksheet Checklist.

### AIRCRAFT ASSIGNMENT

**Aircraft Assignment:** Determine the number, types, and call signs of helicopters, assigned to night operations.

- Aerial supervision, with NVG HLCO being the preferred method, is required when tactically operating three or more helicopters at night. A third aircraft transiting to or from an FTA does not constitute a third helicopter. HLCO shall meet NWCG qualification standards for state and federal response areas.
- Helicopters used at night may not have been designated prior to distributing the IAP and the ICS-220 form.

**Identify the Divisions where helicopters will be assigned.**

- Div. Supervisors must be made aware of nighttime helicopter operations occurring within their operational area.
- On large multi-division incidents, nighttime helicopters operations should be limited to specific designated areas of operation in conjunction with the predetermined tactical objectives.

**Establish the time aircraft will become available and time when night operations will conclude.**

- Helicopters used during the day may require maintenance and/or inspection prior to being placed in service for nighttime operations and again before returning to service in the morning. This may affect start and stop times.
- An Air Operations Briefing must be completed prior to any helicopter beginning nighttime operations.
- Flying during the twilight hours immediately after sunset and before sunrise should be avoided due to the limited effectiveness of the night vision devices under those conditions.



## AIRCRAFT TACTICAL OBJECTIVES

**Aircraft Tactical Objectives: Determine the type of missions to be flown during the nighttime operational period.**

- FIREScope Night Flying Guidelines designate the following acceptable missions for nighttime helicopter operations:
  - Water dropping from helicopters with fixed tanks
  - Recon, mapping, detection
  - Aerial Ignition, PSD
  - Point-to-Point
  - Air Rescue

**Determine the suppression tactic(s) that will be used by helicopters during nighttime operational period.**

- Suppression tactics need to be coordinated between the ground and air resources.
- Flight crews need to know the tactical objective of the ground resources in the operational area.
- Flight crews should be assigned a coordinated tactical objective such as:
  - Structure Protection
  - Anchor and Flank
  - Detection and Suppression of spot fires

## COMMUNICATION

**Communications: Determine appropriate frequency for Air-to-Ground communication.**

- Determine if the same Air-to-Ground frequency used during the day will be available at night.
- Be aware that frequency changes made at the end of the daytime operational period may affect your nighttime communication planning.
- Air-to-ground communication may be conducted on the division tactical frequency if the complexity of the incident permits if the volume of traffic is manageable.



**Determine who may communicate directly with the helicopters, HLCO or ATGS.**

- Division Supervisors are responsible for ensuring effective communication from ground units to helicopters assigned within their operational area.
- Division Supervisors may delegate the authority to communicate directly with the helicopters, Helicopter Coordinator or Air Tactical Group Supervisor.

**CREW MEMBER ACCOUNTABILITY**

**Crew Member Accountability: Establish a method for identifying all personnel in the area of nighttime air operations.**

- All fire line personnel should always utilize headlamps in areas where air operations may be conducted at night.
- Chemical light sticks may be used to identify specific crews or key personnel.
- Blue chemical light sticks emit a spectrum of light that is not visible to night vision goggles (NVG).
- Never shine a light towards an aircraft.

**Addresses the appropriate use of strobe lights as a means to identify a particular crew or individual.**

- Small emergency strobe lights may be used as a means to identify a particular crew or individual.
- Flight crews must be advised as to who will be using strobe lights and for what purpose they will be used.
- Ground personnel must be advised why and when to activate strobe lights.

**TARGET DESCRIPTION**

**Target Description: Address the use of GPS Coordinates for target description.**

- GPS coordinates are best used in the long-range phase of target description to direct aircraft to the general area of the target.
- GPS coordinates are of limited value when attempting to describe a target once an aircraft is circling the area.
- Use degrees/decimal minutes (N dd.dd Wmmm.mm) when expressing GPS coordinates.



**Identify obvious landmarks that can be used as reference points for target description.**

- Man-made landmarks such as roads, developed areas, isolated structures, vehicles, etc.
- Natural landmarks such as peaks, outcroppings, rivers, streams, lakes, etc.
- Landmarks such as lighted roads, freeways and buildings are preferable because they can be seen by personnel on the ground as well as from the air.

**Address the use of Strobe lights as a means for target description.**

- When planned appropriately, strobe lights may be used at night as a means to identify a particular location as a reference point in medium and short-range target description.
- Flight crews must be briefed on the intended use of strobe lights.
- Ground personnel must exercise discipline in only using strobe lights at the appropriate time and only when in communication with the pilot of the aircraft they are attempting to signal.

**Address the use of, or restriction of the use of laser pointing devices.**

- When planned appropriately, laser pointing devices may be used at night as a means to assist in medium and short-range target description.
- Flight crews must be briefed on the intended use of laser pointing devices.
- Ground personnel must exercise discipline in only using laser pointing devices at an appropriate time and only when in communication with the pilot of the aircraft they are attempting to signal.
- NEVER point a laser device at an aircraft.

## **DROP ZONE SAFETY PRECAUTIONS**

**Drop Zone Safety Precautions: Establish a method for verifying that the drop zone is clear of personnel before each drop.**

- Verification of a clear drop zone may be accomplished by radio or by a visual inspection from the air.
- Radio verification requires good communication and positive crew accountability.



- Visual verification from the air may be difficult due to smoke and vegetation canopy.
- Visual verification from the air is easier when all ground personnel are using headlamps.

### **AIRCRAFT REASSIGNMENT**

#### **Aircraft Reassignment: Establish a method and level of authority for reassigning aircraft during the night operational period.**

- The locations and tactical assignments of aircraft engaged in nighttime firefighting operations must be closely monitored in order to stay within the risk assessment criteria.
- Reassignment of aircraft to missions outside of the risk assessment criteria must be properly evaluated and approved at the appropriate level.
- A new risk assessment may be necessary prior to reassigning aircraft to new locations or tactical operation.

#### **Establish a Rescue/ Med-Evac Response Plan for the nighttime operational period.**

- If a helicopter assigned to nighttime tactical firefighting operations is also designated as the night rescue/med-evac aircraft, the risk assessment should reflect the potential EMS mission as well.
- Non-incident helicopters (Air Ambulance, Military, CHP, and Sheriff) designated as the night rescue/med-evac aircraft that are not assigned to nighttime firefighting operations must be advised of the nighttime aerial firefighting plan.
- All incident personnel must be briefed on the nighttime rescue/med-evac response plan.
- Briefing all personnel on the nighttime rescue/med-evac response plan may be difficult due to the plan being developed after publication of the daily IAP.

**APPENDIX H:  
NIGHT AIR OPERATIONS – WATER POINT BRIEFING  
WORKSHEET CHECKLIST**



# FIRESCOPE: Night Operations – Water Point Briefing Worksheet Checklist

Page 1 of 2

This document is intended as a tool to provide air operations personnel guidance in coordinating methods and conducting a comprehensive briefing on the procedures to be utilized to conduct ground fill operations of tanked helicopters at night. Each of the items on the checklist must be **identified, determined, addressed** and/be **established** prior to commencing operations in order to ensure that personnel from every agency involved understand the details of the environment and processes that are to be used during that operational period.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

## HELISPOT CONDITIONS

Check Box	Helispot Conditions
	<b>Helispot Conditions: Determine the size, surface conditions, ground hazards and dust abatement precautions at the helispot.</b>
	<b>Establish a method for identifying the landing pad and the lighting configuration to be used.</b>
	<b>Establish safe approach and departure paths, identify aerial hazards and identify useful landmarks.</b>
	<b>Establish wind-shift decision points and establish change of direction procedures.</b>



### COMMUNICATIONS

<b>Check Box</b>	<b>Communications</b>
	<b>Identify radio frequency(s) and protocol to be used for air-to-ground communication with the water point helispot.</b>
	<b>Identify reporting points to be used in order to manage spacing and sequencing into and out of the water point.</b>
	<b>Determine the hand signals to be used by personnel at the water point helispot.</b>

### GROUND FILL HOSE LAY

<b>Check Box</b>	<b>Ground Fill Hose Lay</b>
	<b>Ground Fill Hose Lay: Determine the configuration of the supply line to be used for helicopter ground fill operations.</b>
	<b>Identify the location of the supply line Shut-Off Valve relative to the aircraft.</b>
	<b>Determine the appropriate GPM flow rate for helicopter ground fill operations.</b>

**APPENDIX I:**  
**NIGHT AIR OPERATIONS WATER POINT BRIEFING**  
**GUIDELINES**



## HELISPOT CONDITIONS

**Helispot Conditions: Determine the size, surface conditions, ground hazards and dust abatement precautions at the helispot.**

- Helispots must be constructed as per the Standards for Helicopter Operations (NSHO).
- The entire helispot and surround area must be carefully examined for potential ground hazards and each identified hazard must be mitigated prior to approving the helispot.
- Whenever possible, water point helispots should be established in areas with hard packed surface that require little to no dust abatement.
- Dust abatement efforts should extend well into the approach and departure corridors and be sufficient to maintain safe conditions during takeoff and landing.

**Establish a method for identifying the landing pad and the lighting configuration to be used.**

- Numbered pad-markers that correspond to the helibase diagram should be used whenever possible.
- Lighted areas such as athletic fields, parking lots and airfields should be used whenever possible.
- Landing areas should be marked, when necessary, with chemical glow sticks by securing four amber colored lights at each corner of the touch down pad and white light approximately five feet from the pad on the side from which the wind is blowing.
- Red high intensity chemical glow sticks are all sufficiently visible to night vision goggles.
- Blue lights are not visible to night vision goggles.

**Establish safe approach and departure paths, identify aerial hazards, and identify useful landmarks.**

- Helispot approach and departure paths should be established as per the NSHO.
- Approach and departure paths must be safely inspected to identify potential aerial hazards.
- All potential aerial hazards should be depicted on a Hazard Map and communicated to the flight crews.



- Landmarks that are visible to the pilots should be identified for use as potential check points.

**Establish wind-shift decision points and change of direction procedures.**

- Wind shifts during night operations should be anticipated
- Wind vector limits across the helispot should be established.
- Vehicles, hose and personnel may need to be repositioned when wind vector limits are exceeded.

## COMMUNICATIONS

**Communications: Identify radio frequency(s) and protocol to be used for air-to-ground communication with the water point helispot.**

- Reliable radio communication must be established with the water point helispot.
- A separate takeoff and landing frequency for the water point should be considered when increased radio traffic on the air-to-ground frequency is anticipated.
- Flight following will be maintained by radio communication with incident personnel and/or Automated Flight Following (AFF) with agency or incident Communications.

**Identify check points to be used in order to manage spacing and sequencing into and out of the water point.**

- Highly visible landmarks that are easy to recognize under night vision goggles should be identified as check points.
- Check points should be selected that provide the water point personnel enough reaction time to communicate effectively with the approaching helicopter.

**Communications: Determine the hand signals to be used by personnel at the water point helispot.**

- Although cooperator helicopter crews use standardized helicopter hand signals, slight variations exist between different agencies.
- In general, hand signals will be used by the cooperator agency supervising the water point.
- Each hand signal to be used at the water point should be predetermined, reviewed and agreed upon by each of the cooperator flight crews.



## GROUND FILL HOSE LAY

**Ground Fill Hose Lay: Determine the configuration of the supply line to be used for helicopter ground fill operations.**

- Although most cooperator helicopter crews use a standardized hose lay for water point operations, slight variations exist between different agencies.
- Some agencies may be capable of setting up and operating two water points, side by side, on the same helispot. This is known as a dual fill water point.
- Two and a half inch or three-inch hose should be used to supply water from the engine to the helicopter in order to provide the appropriate GPM and pressure at the connection.
- Anticipate a change in wind direction and the possible need to move the supply line.

**Identify the location of the supply line Shut-Off Valve relative to the aircraft.**

- Although most cooperator helicopter crews use a standardized hose lay for water point operations, slight variations exist between different agencies.
- Some agencies locate the shut-off valve under the rotor disk, while other agencies locate the valve outside the rotor disk.
- In general, the location of the valve will be determined by the cooperator agency supervising the water point but must be reviewed and agreed upon by the cooperator flight crews.

**Determine the appropriate GPM flow rate for helicopter ground fill operations.**

- Although most cooperator helicopter crews use a standardized flow rate of 360 GPM for water point operations, slight variations exist between different agencies.
- Flow rates higher than 360 GPM could result in damage to some types of tanks.
- Flow rate should be calculated to achieve the appropriate GPM at the connection point to the helicopter's fixed tank.
- In general, the flow rate will be determined by the cooperator agency supervising the water point but must be reviewed and agreed upon by the cooperator flight crews.



## TANK REFILLING PROCEDURES

### **Tank Refilling Procedures: Establish approach procedures for helicopters into the water point helispot.**

- Determine a traffic pattern into the water point helispot.
- Determine a reporting point for contacting the water point on approach.
- Determine a holding procedure for aircraft waiting to approach the water point when it is occupied.

### **Identify the positioning of each person at the water point during approach, landing, take-off and departure.**

- Although most cooperator helicopter crews use a standardized procedure for personnel placement during water point operations, slight variations exist between different agencies.
- Some agencies locate personnel under the rotor disk during takeoff and landing, while other agencies locate all personnel outside the rotor disk during takeoff and landing.
- In general, the location of personnel will be determined by the cooperator agency supervising the water point but must be reviewed and agreed upon by all the cooperator flight crews.

### **Determine a method for the pilot to signal helispot personnel approval to approach the aircraft.**

- Although most cooperator helicopter crews use standardized signals to approve approaching the aircraft, slight variations exist between different agencies.
- Signals used by flight crews during the day may not be visible to water point personnel at night.
- Radio transmissions may be used to communicate the desired amount of water.
- In general, the method used to signal or communicate the desired amount of water will be determined by the cooperator agency supervising the water point but must be reviewed and agreed upon by all of the cooperator flight crews.



**Establish departure procedures for helicopter out of the water point helispot.**

- Predetermined hand signals may be used to coordinate safe departures from the water point.
- Radio communication may be used to coordinate safe departures from the water point.
- In general, the procedures used to coordinate safe departures from the water point will be determined by the cooperator agency supervising the water point but must be reviewed and agreed upon by all the cooperator flight crews.

**Establish emergency procedures for response to incidents or accidents as the water point helispot.**

- Determine a “Point of Contact” for emergency communication to and from the water point.
- Identify the nearest available engine or truck company and make arrangement for immediate response to an accident on or near the water point.
- Assign responsibilities and outline the actions to be taken by each of the assigned personnel in the event of an incident or accident or near the water point.

**APPENDIX J:**  
**NIGHT AIR OPERATIONS – DIP SITE BRIEFING WORKSHEET**  
**CHECKLIST**



# FIRESCOPE: Night Operations – Dip Site Briefing Worksheet Checklist

Page 1 of 2

This document is intended as a tool to provide air operations personnel guidance in coordinating methods and conducting a comprehensive briefing on the procedures to be utilized to conduct dip site operations of tanked helicopters at night. Each of the items on the checklist must be **identified, determined, addressed** and/be **established** prior to commencing operations in order to ensure that personnel from every agency involved understand the details of the environment and processes that are to be used during that operational period.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

Check Box	Task
	<b>Dip Site Conditions: Determine the size, type, conditions, and hazards at the dip site.</b>
	<b>Confirm lighting and aircraft configuration to be used.</b>
	<b>Establish safe approach and departure paths, identify aerial hazards and identify useful landmarks.</b>
	<b>Establish wind-shift decision points and establish change of direction procedures.</b>
	<b>Confirm pilot hover references are adequate.</b>



## **FIRESCOPE: Night Operations – Dip Site Briefing Worksheet Checklist**

Page 2 of 2

<b>Check Box</b>	<b>Task</b>
	<b>Identify radio frequency(s) and protocol to be used for air-to-air communications.</b>
	<b>Identify check points to be used to manage spacing and sequencing into and out of the dip site.</b>
	<b>Determine if any ground personnel are required at dip site.</b>
	<b>Extended attack: Determine if the dip site is still required, and/or if any water point locations need to be added.</b>
	<b>Intentionally left blank.</b>
	<b>Intentionally left blank.</b>

**Appendix K:**  
**NIGHT AIR OPERATIONS DIP SITE BRIEFING GUIDELINES**



### **DIP SITE CONDITIONS**

**Dip Site Conditions: Determine the size, type, conditions, and hazards at the dip site.**

- Dip site and surrounding area must be flown previously during the day, and/or receive and air-air briefing on the dip site as well as be led-in and shown all hazards by another operator that has previous experience at the intended dip site.
- The entire dip site and surrounding area must be carefully examined for potential hazards and each identified hazard must be mitigated prior to approving the night dip site.
- Whenever possible, pre-established night dips sites are the preferred method.

**Lighting and aircraft configuration to be used.**

- 30% or more moon illumination and/or good ambient lighting (no scintillation effect in goggles).
- Snorkel should be illuminated via steerable landing light, chem lights or LEDs.
- In lieu of snorkel lighting, a crew member / spotter on-board the aircraft, or a crew member on the ground with a radio, communicating to the pilot snorkel position is acceptable.
- High intensity search lights should be positioned far enough off to the side, so the pilot does not become overwhelmed by the direct illumination of the water spray created by the downwash.

**Establish safe approach and departure paths, identify aerial hazards and identify useful landmarks.**

- Night approach and departure paths should be established as per the NSHO (same as daytime operations).
- Approach and departure paths must be safely inspected to identify potential aerial hazards.
- All potential aerial hazards should be depicted on a Hazard Map and communicated to the flight crews.
- Landmarks that are visible to the pilots should be identified for use as potential reporting points.



**Establish wind-shift decision points and change of direction procedures.**

- Wind shifts during night operations should be anticipated.
- Wind vector limits across the dip site should be established.
- Adequate pilot reference as well as approach and departure paths need to be re-evaluated.

**Multiple aircraft operations, and communications: Air-to-air communication and coordination with the other aircraft.**

- Use standard dip site self-announce procedures on pre-established air to air frequency.
- Multiple aircraft at dip site, ensure that aircraft spacing allows ample time for aircraft to approach and depart and/or enough spacing that the water spray and downwash does not interfere with corresponding aircraft.
- Consider geographic check points.
- Flight following will be maintained by radio communication with incident personnel and/or Automated Flight Following (AFF) with agency or incident Communications.

**Identify check points to be used to manage spacing and sequencing into and out of the dip site.**

- Highly visible landmarks that are easy to recognize under night vision goggles should be identified as reporting points.
- Check points should be selected that provide the water point personnel enough reaction time to communicate effectively with the approaching helicopter.

**REFERENCES**

**References: Pilot hover references.**

- Shorelines and/or other highly definable references shall be constantly maintained for every phase of flight, approach, hover and departure.
- No "open water / water only reference" operations are allowed.
- References more than 3 rotor discs away are not advisable single pilot.

## **Appendix L:**

### **NIGHT OPERATIONS – EXTENDED ATTACK NVG HELICOPTER GO-NO-GO CHECKLIST**



# FIRESCOPE: Night Operations – Extended Attack NVG Helicopter Go-No Go Checklist

Page 1 of 2

The NVG Go/No-Go Checklist must be completed by the pilot of each Cooperator aircraft, prior to commencing nighttime aerial firefighting operations. When established, the Helibase Manager and the Air Operations Branch Director or responsible person, (i.e., Operations/IC) will also review and sign. If any box is unchecked (the item is NOT accomplished), the entire nighttime aerial firefighting operation is a No-Go. A check mark inside a box indicates that all aspects of the required procedures are applicable and have been satisfied.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

## OPERATIONAL PLANNING

All nighttime aviation missions have been subjected to the risk assessment process and have been approved by the Air Operations Branch Director and the Incident Commander.

All applicable aviation positions are assigned to fully qualified personnel.

Pilots, aircraft and support personnel meet agency requirements for nighttime aerial firefighting operations.

An organization chart has been prepared and distributed, showing applicable functions and the name of the person responsible.

Temporary Flight Restriction (TFR) is in place when appropriate.

All pilots meet duty day and flight hour limitations - per organization.

## COMMUNICATIONS

A nighttime communications plan has been prepared and approved to include the following:

- Air-to-Air
- Air-to-Ground
- Take Off and Landing
- Command



## BRIEFINGS

Ground personnel assigned to work in areas of the incident where nighttime aerial firefighting operations will occur have been briefed. (Nighttime Air Operations Branch / Division Briefing Guidelines & Worksheet).

Flight crews and Helibase personnel have been briefed on specifics of nighttime helibase operations.

Flight crews and personnel assigned to the Water Point or Night Dip Site have been briefed on specific procedures for nighttime water point operations. (Nighttime Helicopter Water Point and Dip Site Briefing Guideline & Worksheet).

## HELIBASE OPERATIONS

A cooperator-qualified crewmember has been assigned to the helibase.

Procedures have been established for nighttime helicopter movement around the helibase.

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

Procedures have been established for flight following of assigned aircraft.

Procedures have been established to control the movement of personnel and vehicles around the helibase.

Procedures have been established to provide dust abatement measures during nighttime helibase operations.

Emergency procedures have been established for response to incidents or accidents at the helibase.

**APPENDIX M:**  
**NIGHT OPERATIONS – DIP SITE BRIEFING CHECKLIST**



## WATER POINT OPERATIONS

Utilization of night water points should be anticipated and planned for prior to night operations.

Helispot used for water point operations is of adequate size with acceptable surface conditions and free of ground hazards.

Procedures have been established to provide dust abatement measures during nighttime water point operations. Procedures have been established for identifying the landing pad and the lighting configuration to be used.

Safe approach and departure paths have been identified.

Check points have been established to manage spacing and sequencing into and out of the water point. Potential aerial hazards have been identified.

Wind-shift decision points have been established and change of direction procedures are in place. Specific hand signals have been identified to be used by personnel at the water point.

Supply line configuration and Shut-Off Valve location has been established. Appropriate GPM flow rate for helicopter ground fill has been established.

Positioning of personnel at the water point during landing and take-off has been established.

A method has been established for pilots to signal water point personnel approval to approach the aircraft.

A method has been established for pilots to communicate or signal to helispot personnel the desired amount of water. Emergency procedures have been established for response to incidents or accidents at the water point.

## DIP SITE OPERATION

Utilization of night dip sites should be anticipated and planned for operations.

Dip sites used for water point operations to be of adequate size with acceptable conditions and free of hazards.

Procedures have been established to provide pre-designated and/or verified nighttime dip site locations.

Procedures have been established for lighting and aircraft configuration to be used.

Safe approach and departure paths have been identified.

Radio frequency(s) and protocol have been established for air-to-air communications.



## DIP SITE OPERATION (CONTINUED)

Check points have been established to manage spacing and sequencing into and out of the dip site.

Potential aerial hazards have been identified.

Wind-shift decision points have been established and change of direction procedures are in place.

Ground personnel at dip site with radio communication during initial attack if available. During extended attack, recommend ground personnel with radio communication and NVGs if available.

Dust abatement provisions in place (if required).

Emergency procedures have been established for response to incidents or accidents at the dip site.

**APPENDIX N:**  
**NIGHT OPERATIONS – INITIAL ATTACK NVG HELICOPTER  
GO-NO-GO CHECKLIST**



**FIRESCOPE: Night Operations – Initial Attack NVG Helicopter Go-No-Go Checklist**  
Page 1 of 2

The FIRESCOPE Night Operations – Initial Attack NVG Helicopter Go/No-Go Checklist must be completed prior to conducting night helicopter operations. The Go/No-Go Procedures are the last step in formally documenting the mitigation of operational risks.

The Initial Attack NVG Go/No-Go Checklist must be completed by the pilot and flight crew immediately upon starting their shift. All night aerial firefighting initial attack missions shall be a preapproved mission set within an area of responsibility familiar to the flight crew.

If any box is unchecked (the item is NOT accomplished), the entire nighttime aerial firefighting operation is a No-Go. A check mark inside a box indicates that all aspects of the required procedures are applicable and have been satisfied.

During NVG initial Attach, water point operations are dip site management may not be feasible.

Date: \_\_\_\_\_ Incident Name: \_\_\_\_\_

Operational Period Start: \_\_\_\_\_ End: \_\_\_\_\_

**OPERATIONAL PLANNING**

All nighttime aviation missions have been subjected to the risk assessment process and missions have been approved by each have been preapproved as a mission set by the authority overseeing the NVG aerial resource (i.e., Air operations department, aviation management, etc.).

All applicable aviation positions are assigned to fully qualified personnel.

Pilots, aircraft and support personnel meet agency requirements for nighttime aerial firefighting operations.

All flight crews are aware of next-level risk decision authority and triggers warranting engagement.

All pilots meet duty day and flight hour limitations - per organization.

**COMMUNICATIONS**

A nighttime communications plan has been prepared and approved to include the following:

- Air-to-Air
- Air-to-Ground
- Take Off and Laundry
- Command



# **FIRESCOPE: Night Operations – Initial Attack NVG Helicopter Go-No-Go Checklist**

Page 1 of 2

## **BRIEFING**

Ground personnel assigned to work at-scene are aware of inbound nighttime aerial resources.

Flight crews are aware of the operating area, possible number of aircraft in the FTA, and if aerial supervision will be at-scene.

## **BASE OPERATIONS**

Local procedures and policy have been established for nighttime helicopter movement around the base, as directed by agency or department.

Procedures have been established for maintaining aircraft separation in the airspace surrounding the base. Procedures have been established for flight following of assigned aircraft.

Procedures have been established to control the movement of personnel and vehicles around aircraft movement areas.

Emergency procedures have been established for response to incidents or accidents at the base.

**APPENDIX O:**  
**APPROVAL & REVIEW PRIOR TO COMMENCING NIGHTTIME  
AERIAL FIREFIGHTING OPERATIONS**



**FIRESCOPE: Night Operations – Initial Attack NVG Helicopter Go-No-Go Checklist**  
Page 1 of 1

**Approval & Review Prior to commencing extended attack night aerial firefighting Operations:**

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
(Print Name/ICS Position) (Signature)

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
(Print Name/ICS Position) (Signature)

Reviewed By: \_\_\_\_\_ Agency: \_\_\_\_\_ Date: \_\_\_\_\_ Time \_\_\_\_\_  
(Print Name/Pilot) (Signature) (Agency & ID)

Reviewed By: \_\_\_\_\_ Agency: \_\_\_\_\_ Date: \_\_\_\_\_ Time \_\_\_\_\_  
(Print Name/Pilot) (Signature) (Agency & ID)

Reviewed By: \_\_\_\_\_ Agency: \_\_\_\_\_ Date: \_\_\_\_\_ Time \_\_\_\_\_  
(Print Name/Pilot) (Signature) (Agency & ID)

Reviewed By: \_\_\_\_\_ Agency: \_\_\_\_\_ Date: \_\_\_\_\_ Time \_\_\_\_\_  
(Print Name/Pilot) (Signature) (Agency & ID)

Reviewed By: \_\_\_\_\_ Agency: \_\_\_\_\_ Date: \_\_\_\_\_ Time \_\_\_\_\_  
(Print Name/Pilot) (Signature) (Agency & ID)

## Night Flying Sources of Information

1. [Spectral Sensitivity](#)  
Display of the light spectrum and NVG sensitivity. The graph is related to operational issues that result from spectral sensitivity.
2. [Federal Aviation Administration Technical Standards Order TSO-C164 For Night Vision Goggles](#)  
Contains the minimum standards for Night Vision Goggles. The information can be used to develop purchase contract technical standards.
3. [Training Syllabus](#)  
Sample of Los Angeles County Fire Department NVG training syllabus (provided on request).
4. [Federal Aviation Administration Order 8900.10 Accident-Avoidance Programs](#)  
This document contains information on Helicopter Emergency Medical Services Loss of Control and Controlled Flight into Terrain Accident-Avoidance Programs. The information can be used to develop night flying policy, procedures, and training manuals.
5. [Guidance for Helicopter EMS Safety Inspections](#)  
This notice provides updated Guidance for aviation safety inspectors. The information can be used to help develop night flying policy, procedures, and training manuals.
6. [Helicopter Emergency Medical Service Safety Alert](#)  
Summarizes safety issues relating to night flight. Also contains a good list of internet source material for safety programs.
7. [14 CFR Part 61](#)  
Provides federal regulations governing the night vision goggle training, currency, and logging of flight time.