Standards for Short-haul Operations

2024

The Forest Service Standards for Short-haul Operations (SSHO) is established to provide sufficient direction and criteria for program oversight, responsibilities, equipment, policy, and procedures for the Fire and Aviation Management short-haul program.

Cover image: USDA Forest Service photo.

Contents

Review and Approval

The following signatures designate leadership roles in preparing, reviewing, and approving the Standards for Short-haul Operations:

Table 0-1 Review and Approval

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Sponsorship

This is a Forest Service Fire and Aviation Management sponsored publication.

Questions regarding the content of this publication may be directed to the National Helicopter Short-haul Program Manager or Rotor-Wing Branch Chief.

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Review and Revision

The appropriate Program Manager and Rotor-Wing Branch Chief will review and/or revise the Operations Plan on a 3-year cycle, with a change option annually.

Changes made during the cycle will be documented on a Digest Form (below), reviewed by the Washington Office Branch Chiefs, and approved by the Assistant Director, Aviation

Modifications to this document may occur given the following:

- Proposed modification is approved by Forest Service National Aviation Office and remains within policy and FAA guidance.
- Any approved modification will be issued in writing identifying the changes.

Previous Edition: 2023

Summary of Changes

These tables provide a list of approved significant changes made to the current approved version of the operations plan. The working team met to review and incorporate revisions to the Standards for Short-haul Operations that were generated from the field.

Table 0-1 Standards for Short-haul Operations Version Approval

Date Approved	Version	Summary of Changes
Signed March 2022	7.0 EMSHOP	Year Eight
Signed March 2023	1.0 SSHO	Year Nine

Table 0-2 Significant Changes to the Standards for Short-haul Operations

Change	Location	Reasoning
Mission Statement	Chapter 1, 1.2	Realigned with expansion of mission scope.
Authority and Responsibilities	Chapter 1, 1.3	Realigned with current Committee and Council oversight.
Leaders Intent	Chapter 1, 1.4	Realigned with expansion of mission scope.
Use of Short-haul	Chapter 1, 1.7	Realigned with expansion of mission scope.
Inclusion of Firefighting Tools	Chapter 3, 3.1	Included additional equipment for fire operations.
Requirements for medical capabilities	Chapter 4, 4.1	Included requirement for crews to maintain a medical capable response.
Included minimum qualifications for fire short-haul	Chapter 4, 4.2	Expanded language to include minimum qualifications for initial attack fire short-haul insertion.
Inflight Considerations	Chapter 4, 4.9.3	Addressed short-haul for fire operations.
New Base Start-Up Procedures	Appendix A	Realigned with to follow Aviation Proposal Template process.
Training Syllabus	Appendix B	Update to reflect current training delivery methods.
Short-haul Risk Assessment	Appendix L, PR3, TR2.1M3, OP10.4 M1	Updated Hazards and Mitigations to include short-haul fire operations.
Short-haul Risk Assessment	Appendix L, PR2.3, PR2.3M1	Updated Hazard and Mitigation to include dual training in ADFF.

Chapter 1. General Information

1.1 History of Short-haul

The helicopter short-haul technique was originally developed and tested by Swiss Air Rescue (REGA) in 1966. Short-haul is an alternative to helicopter rappelling for delivering personnel to an incident site. Short-haul techniques are used in numerous European countries, Parks Canada, U.S. Military, several federal agencies, and industrial applications such as powerline construction and maintenance. The Department of the Interior's National Park Service (NPS) began their short-haul program in Yosemite National Park in 1982 and quickly expanded throughout may other parks.

In 2015 the Forest Service Short-haul Program was developed and implemented with the NPS providing the guidance and leadership needed to initiate this helicopter program from their decades of experience. Since then, Interagency Helicopter Operations Subcommittee (IHOpS) has tasked the two agencies' short-haul working teams to align practices, equipment, and procedures to provide and support a consistent and standardized response particularly when operating in the interagency wildland fire environment. By combining efforts, the agencies have already seen benefits to operations in support of the public, agency personnel, Incident Management Teams, and interagency cooperators through similar staffing requirements, equipment, and training standards. While the polices between the two agencies have differences, the mission to insert and extract personnel from difficult terrain, environments, and situations continues to be the common objective.

2015 Forest Service stood up two short-haul crews:

- R-4 Bridger-Teton National Forest, Jackson, WY
- R-6 Okanogan-Wenatchee National Forest, Wenatchee, WA

2016 Forest Service stood up three additional short-haul crews:

- R-1 Helena-Lewis and Clark National Forest, Helena, MT
- R-3 Coronado National Forest, Tucson, AZ
- R-4 Payette National Forest, McCall, ID

1.2 Mission Statement

The mission of the Forest Service Short-haul Program is to provide a highly specialized technique and ensure safe and efficient use of short-haul capabilities for incidents managed by the agency or interagency partners.

1.3 Authority and Responsibilities

The Washington Office (WO) Aviation Management has national program direction and oversight for the short-haul program.

The Helicopter Operations Specialist Committee (HOSC) will provide oversight of the Short-haul Operations Working Team (SHOWT). The HOSC recommends policy, standards, procedures and direction for all short-haul training and operations to the National Aviation Officer Council (NAOC).

The National Helicopter Short-haul Program Manager (NHSHPM) is the agency program manager, providing expertise, oversight, and training for the program. The NAHOS is the permanent chair of the Short-haul Operations Working Team (SHOWT) but is a direct report to the Rotor-Wing Branch Chief.

The Short-haul Operations Working Team (SHOWT) is established under the HOSC. The primary mission for the SHOWT is to establish a formal process for review and evaluation of current and proposed helicopter short-haul equipment, training, operating procedures, and standardization for the United States Forest Service. Based on those evaluations, the SHOWT will submit recommendations to the HOSC. The HOSC and SHOWT may use technical specialists for technical support or focus on specific issues.

1.4 Leader's Intent

The intent of the short-haul program is to ensure safe and efficient use of short-haul capabilities to transport personnel to remote, difficult locations to aid and extract personnel, initial attack fires, or provide support to incidents. In some cases, short-haul may be the most expedient means to get medical care to a person in need, as well as extract an injured or ill employee for transport to definitive medical care. The Forest Service highly values the safety and health of its employees and cooperators. As such, each short-haul program is required to maintain operational capacity for a medical response above all other mission requests. This includes appropriate personnel, qualifications, equipment, flight time, etc.

1.5 Objective

The Forest Service Standards for Short-haul Operations (SSHO) is established to provide sufficient direction and criteria for program oversight, responsibilities, equipment, policy, and procedures for the Fire and Aviation Management short-haul program.

1.6 Definition of Short-haul

Short-haul: To transport one or more persons, suspended beneath a helicopter as known as Human External Cargo (HEC).

1.7 Use of Short-haul

Short-haul may be used if the totality of the circumstances indicate that short-haul techniques would be the safest and/or most reasonable way to proceed. Factors such as the duration and difficulty of scene access, expected fire behavior, patient safety, possible medical complications, transport time to a definitive care facility, weather (past, present, and predicted), available

daylight, and resource availability should be considered. A risk assessment will always be completed prior to operations.

1.8 Short-haul Crew Organization

Short-haul crew modules shall adhere to the Incident Command System (ICS) span of control for supervision. Span of control is influenced by the size, complexity, and specific hazards of the incident or operation a minimum of one supervisor/leader to five subordinates should be the target for each short-haul crew.

Understanding that some helicopter programs support multiple helicopters, this module configuration is for single helicopter short-haul crews and was developed with the appropriate span of control ratio in mind. Additionally, there is a table that outlines the Short-haul Working Team's recommendation for module size and configurations. This recommendation is based upon the added medical workload, courses and refreshers required for a short-haul crew, increasing requests to support incidents with extraction capabilities, and increased management to allow for career development while continuing staffing requirements for the short-haul module. Other organizational objectives are:

- Minimum module size is ten persons per short-haul helicopter.
- Minimum of two spotters will be qualified.
- Three to five crewmembers are recommended to be Emergency Medical Technicians (EMT).

Standard 10-Person Module

Table 1-1 Standard 10-Person Module

Position Description	Grade	Minimum Tours	Number of Positions
Helitack Program Manager	GS-09	26/0	1
Assistant Helitack Program Manager	GS-07/08	18/8 Minimum	1
Squad Leader	GS-06/07	13/13 Minimum	2
Senior Firefighter	GS-04/05	13/13 Minimum	2
Firefighter	GS-04/05	Temporary	4

The crew leadership positions (Helitack Program Manager, Assistant Helitack Program Manager, and Squad Leaders) should all be filled as recommended to achieve the appropriate span of control. The ratio of Senior Firefighter, Apprentice, and Temporary Firefighter positions may be flexed to accommodate experience, skills, and developmental opportunities. However, the number of the firefighter positions in total should be achieved to provide adequate crew capability for initial attack purposes and continuous short-haul capability.

Recommended 16-Person Module

Table 1-2 Recommended 10-Person Module

Position Description	Grade	Minimum Tours	Number of Positions
Airbase Manager	GS-11	26/0	1
Helitack Program Manager	GS-09	26/0	1
Assistant Helitack Program Manager	GS-07/08	26/0	3
Squad Leader	GS-06/07	18/8 Minimum	4
Senior Firefighter	GS-04/05	18/8 Minimum	4
Firefighter	GS-04/05	Temporary	3

Individuals need to be administratively assigned to the module to participate as a short-hauler or short-haul spotter. Forest Service Working Team members may participate within operations by attending and participating in training and with supervisor approval. Helitack crews that have been approved for the additional operational capability of short-haul to their program, will be considered with supervisor approval for participating in short-haul training and receiving short-hauler and short-haul spotter qualifications prior to activation year.

Individuals who are not formally assigned to a short-haul program but who can contribute to the program through their experience (i.e., previously qualified Short-hauler or Short-haul Spotter) will be considered on a case-by-case basis. Approvals will be made annually and collaboratively by the NHSHPM and Short-haul Check Spotters after considering the entire short-haul program, the duration of the assignment, and thoroughly reviewing the candidate's experience and the candidate's proposed role.

1.9 Quality Assurance

The purpose of the Short-haul Quality Assurance (QA) review is to ensure that all Forest Service Short-haul Programs are meeting the intent of the national standardization effort, abiding by the Forest Service Standards for Short-haul Operations, and providing a Quality Assurance Program. Quality Assurance reviews will be conducted during the first three operational years of any newly established short-haul crew. Short-haul crews with three or more years of operational experience will have a QA review conducted at a minimum of every three years. If a deficiency is identified on any short-haul crew with current operational status, a QA review may be conducted the following year at the discretion of the SHOWT.

1.10 Interoperability

The Department of the Interior's National Park Service (NPS) and United States Department of Agriculture's Forest Service (USDA FS) Helicopter Short-haul Interoperability Plan is approved for all short-haul operations involving a mixed team of NPS and Forest Service personnel or aircraft.

This Interoperability Plan provides a set of requirements to be used when short-haul operations include individuals from each agency. This plan is a subset of both operational plans and will be located within the appendices of each plan (Appendix O). The plan includes guidance to ensure that both agencies' short-haul programs work in a collaborative manner to ensure operating procedures and equipment are compatible for safe short-haul operations when working with a mixed team. The plan will be reviewed annually by the National Wildfire Coordinating Group (NWCG) Helicopter Short-haul Unit (HSHU) and will be revised if needed.

Each agency will continue to use their agency's short-haul operations plan for operations that do not contain mixed team members.

Chapter 2. Short-haul Qualifications and Requirements

2.1 Approved Aircraft

Only Interagency-Carded Aircraft and Interagency-Carded Pilots will be used for Forest Service short-haul operations. The Short-haul Program is continually striving for enhancements in aircraft and equipment to meet Federal Aviation Administration (FAA) requirements.

2.2 Pilot Requirements

Pilot(s) shall comply with the following minimum requirements annually:

- Meets appropriate contract specific pilot standards.
- Successfully complete a flight evaluation in accordance with the Interagency Helicopter Pilot Practical Test Standards (IHPPTS) administered by an Interagency Helicopter Pilot Inspector (HPI) and possesses a current Interagency Helicopter Pilot Qualification Card with an External Load, Short-haul mission authorization.
- Initial pilots must complete a Short-haul Training.
- Completes Short-haul specific Crew Resource Management (CRM) training.
- Until all the managing unit's initial pilot short-haul training is successfully completed, the pilot may only conduct supervised short-haul training flights.

2.2.1 Pilot Short-haul Evaluation

Pilots will be evaluated in accordance with the current version of the Interagency Helicopter Pilot Practical Test Standards.

All four phases of the evaluation must be successfully completed in succession in accordance with the Practical Test Standards, and Phase III (Typical Terrain) of the evaluation shall be commenced no later than 15 days from the successful completion of Phase II (Targets) of the evaluation.

Phase I-III will be performed with a static load. Phase IV will be performed with a live load. In addition to the short-haul task objectives and standards in the Practical Test Standards, the following will be evaluated:

- Preflight briefing
- Hand signals / Verbal Communication
- Insertion Procedures (Attendant and equipment to the scene)
- Extraction procedures (Hook-up)
- Pilot/ground personnel actions in the event of an emergency

2.2.2 Pilot Proficiency Requirements

To maintain currency, each pilot must fly at least one short-haul sequence demonstrating proficient operational procedures within the preceding 30 days. A short-haul evolution completed for another agency meets proficiency requirements.

If proficiency is lost:

- Review SSHO Emergency Procedures with spotter.
- Perform one ground sequence with potter demonstrating proficient operational procedures.
- Perform one live short-haul evolution demonstrating proficient operational procedures prior to any operational short-haul mission.
- If a period of 42 days passes without an operational or proficiency flight, the Spotter, with the concurrence of the NHSHPM, will ensure the pilot can inserting/extract Short-haulers through the use of ground sequences and proficiency short-haul evolutions using an inert evolution before live HEC evolutions.

IMPORTANT NOTE: At any time, the spotter determines the pilot's performance is below standard, the spotter will work with the Contracting Officer Representative (COR) to notify the Contracting Officer (CO) and, if desired, consult with a Helicopter Pilot Inspector to inform follow-up actions. It shall be the **responsibility** of the local program manager to ensure proficiency requirements are met and properly documented on a unit log or equivalent Check Spotter.

2.3 Check Spotter Duties and Responsibilities

These duties and responsibilities are not all inclusive. There may be additional items assigned by the Regional Helicopter Operations Specialist (RHOS) and National Helicopter Short-haul Program Manager consider Check Spotter Duties

- Promote standardization.
- Maintain a centralized roster for all Spotter and Spotter trainees within your Region.
- Perform evaluation of Spotter trainees. Perform re-currency evaluations of carded Spotters.
- Provide documentation on Spotter and Short-hauler performance.
- Present a willingness to participate and work with other check spotters in and out of the Region to achieve a common goal.
- Represent on a national level (attend national short-haul workshops, participate on national related committees, and remain involved with short-haul issues).
- Follow all policies and procedures.
- Review short-haul related material for standardization purposes.

- Bring short-haul related issues to the National Helicopter Short-haul Program Manager, Regional Helicopter Operations Specialist, and Regional Short-haul Representative.
- Assist with the planning of annual short-haul training as necessary.

IMPORTANT NOTE: Check Spotters may suspend spotter or short-hauler qualifications pending review of the next higher certifying level. Revocations of this qualification will be determined at the appropriate Regional or Washington Aviation Office.

2.3.1 Check Spotter Initial Certification Requirements

A Regional Helicopter Operations Specialist (RHOS) with concurrence of the National Helicopter Short-haul Program Manager (NHSHPM) will approve Short-haul Check Spotters in the form of a designated letter. In addition to meeting all spotter requirements, Check Spotter candidates must:

- Have previously served as a qualified Short-haul Spotter for one season.
- Have demonstrated ability as an instructor and assisted in the training at two annual training academies or other equivalent experience.

2.3.2 Check Spotter Annual Certification

Short-haul Check Spotters must meet annual certifications requirements as a Short-haul Spotter.

2.3.3 Check Spotter Proficiency Requirements

Completes required evolutions as outlined in Certification and Proficiency Table, 2.8

2.4 Spotter Initial Certification Requirements

Spotter candidates must:

- Be qualified as Helicopter Manager (HMGB)
- Be qualified as Incident Commander Type 4 (ICT4)
- Be previously qualified as a Short-hauler. Personnel without one year of short-hauler experience, must maintain short-hauler proficiency during their initial spotter year.
- Attend initial 3.0-hour Crew Resource Management (CRM) before attending short-haul training.
- Initial spotter training may be performed by a qualified Spotter, with the guidance of a Check Spotter, using the spotter training syllabus in Appendix B.
- The following tasks will be completed under the supervision of a Check Spotter for final qualification. This evaluation will be completed by a Check Spotter from another base.

- Demonstrate knowledge of the inspection, care, and maintenance of short-haul equipment.
- Demonstrate ability to rig the helicopter for short-haul, provide a safety briefing and conduct a safety check of short-haul personnel without procedural error.
- Demonstrate knowledge of emergency procedures.
- Demonstrate ability to work with the pilot.
- Demonstrate knowledge of risk assessment and mission structure.
- Demonstrate the understanding of wildland fire operations regarding short-haul operations.
- Before the check ride evaluation, all required evolutions have been performed as outlined in Certification and Proficiency Table, 2.8.
- Successful completion of Check Spotter evaluation.

2.4.1 Spotter Annual Certification

A Short-haul Spotter who was previously certified as a Spotter must complete annual certification training as outlined below in 2.8 to the satisfaction of a qualified Check Spotter. Previously qualified Spotters must complete annual short-hauler certification, however, does not need to maintain proficiency during that year.

2.4.2 Spotter Proficiency Requirements

Completes required evolutions as outlined in Certification and Proficiency Table, 2.8.

2.5 Short-hauler Initial Certification Requirements

Short-hauler candidates must:

- Be Helicopter Crewmember or HECM (T).
- Attend initial 3.0-hour Crew Resource Management (CRM) before attending short-haul training.
- Demonstrate knowledge of the inspection, care and maintenance of short-haul equipment and rigging.
- Demonstrate knowledge of short-haul procedures.
- Demonstrate knowledge of emergency procedures.
- Completes required evolutions as outlined in Certification and Proficiency Table, 2.8.
- Demonstrate knowledge of risk assessment and mission components.
- Demonstrates understanding of patient packaging for short-haul evolution.

- Demonstrate the understanding of wildland fire operations regarding short-haul operations.

2.5.1 Short-hauler Annual Certification

A short-hauler who was previously certified as a short-hauler must complete annual certification training as outlined below in 2.8 to the satisfaction of a qualified Check Spotter.

2.5.2 Short-hauler Proficiency Requirements

Completes required evolutions as outlined in Certification and Proficiency Table, 2.8.

2.6 Annual Short-haul Certification Requirements

Short-haul personnel will attend annual short-haul training. All certifications will be approved for one year from their annual training completion date.

2.6.1 Annual Short-haul Training for All Positions

- Participation in helicopter safety refresher training.
- Review and discussion of the short-haul operations plan, emergency procedures and risk assessment.
- Review short-haul related incidents and lessons learned.
- Attend 1.5 hour Short-haul specific CRM training.

2.6.2 Check Spotter and Spotter

- Equipment inspection & preparation.
- Demonstrate personal protective equipment use along with equipment rigging and attachments.
- Demonstrate hand signals and radio communication.
- Documentation and reporting.
- Familiarity of rigging short-haul equipment to the helicopter, as per SSHO Chapter 4, Equipment Check.
- Emergency procedures.
- Completes required evolutions as outlined in Certification and Proficiency Table, 2.8 to the satisfaction of a Check Spotter.

2.6.3 Short-hauler

- Equipment inspection & preparation.

- Patient packaging and equipment usage.
- Proper documentation and reporting.
- Completes required evolutions as outlined in Certification and Proficiency Table, 2.8.

2.6.4 Annual Certification

Completes required evolutions as outlined in Certification and Proficiency Table, 2.8.

2.6.5 Proficiency Requirements

Completes required evolutions, as outlined in Certification and Proficiency Table, 2.8.

2.7 Lapse of Annual Certification-Recertification Requirements

If a Short-hauler or Spotter has lost their annual certification for no more than two (2) consecutive operational seasons, an individual may recertify as a Short-hauler by completing the requirements for annual certification (as outlined in Chapter 2).

If the recertifying individual cannot consistently demonstrate proficiency through their annual certification training, the individual may only be recertified by successful completion of initial training requirements (as outlined in Chapter 2).

If three (3) or more consecutive seasons elapse since their last certification, the individual shall have to complete Short-hauler or Spotter initial training requirements.

2.8 Short-haul Certification and Proficiency Table

It is the responsibility of the Check Spotter or Short-haul Program Manager to determine, beyond the minimum requirement, the frequency of proficiency short-haul evolutions for all short-haul personnel, including the pilot. The Check Spotter may require additional training based on the complexity of the program, or for individuals needing more instruction. An operational short-haul within the proficiency period may count as a proficiency short-haul.

Table 2-1 Short-haul Certification and Proficiency Minimum Requirements

Position	Initial Certification	Recertification	Proficiency	Lapsed Proficiency
Pilot	Pass the pilot practical exam in accordance with the PTS. Successfully complete unit training.	Pass the pilot practical exam in accordance with the PTS. Successfully complete annual short-haul training.	Short-haul once every 30 days or less.	Review SSHO communications, hand signals, and emergency procedures with spotter. Perform ground sequence with spotter demonstrating proficient operational procedures. Perform one live short- haul evolution demonstrating proficient operational procedures prior to an operational short-haul.
Check Spotter/ Spotter	Spot minimum of three inert evolutions. Spot six evolutions of HEC with: Minimum of two of the six in typical terrain. Minimum of two with a 250' line. All evolutions will be conducted under the supervision of a qualified spotter.	Spot two evolutions with: Minimum of two in typical terrain. Minimum of two with HEC.	Spot once every 21 days or less.	Review SSHO equipment checks, communications, hand signals, and emergency procedures w/ pilot. Notify check spotter prior to performing live short-haul evolution. Perform one line short-haul evolution prior to an operational short-haul.
Short-hauler	Complete a minimum of four evolutions. Minimum of two in typical terrain. Minimum of one with a 250' line. Minimum of two with double hauler configuration. Minimum of two with single hauler configuration.	Complete a minimum of two evolutions. Minimum of one in typical terrain.	Short-haul once every 21 days or less.	Review SSHO equipment checks, communications, hand signals, and emergency procedures with spotter. Perform one ground sequence. Perform one live short- haul evolution prior to an operational short- haul.

*The Spotter may request that the pilot demonstrate the ability for precision placement on a more frequent basis. Without sacrificing efficiency or safety, short-haul pilots are encouraged to practice precision placement of external loads as often as possible. During routine project work it may be useful to define spot-specific targets and use a long line of the same length as the haul-line normally used for short-haul.

Chapter 3. Equipment

3.1 Equipment Standards

All equipment used in short-haul operations shall be approved by the Forest Service's Short-haul Working Team. All equipment will be monitored during use for wear and stress related damage.

Shortening the service life or removal from service of a special component may be done, as necessary, to maintain an adequate margin of safety in the program.

Standard firefighting tools and equipment may be used during short-haul operations. Tool heads, sharp edges and blades, or other materials that could impact tethers will have edge protections and be positioned in such a way to eliminate concern from the Short-hauler. Hazardous materials can be transported using short-haul operations and will follow all the pertinent agency policies.

3.2 Personal Protective Clothing

For all onboard flight activities; Personal Protective Equipment (PPE) shall be worn in accordance with current contract, NWCG Standards for Helicopter Operations (NSHO), and Interagency Aviation Life Support Equipment (ALSE) standards during operations.

When conducting short-haul operations in the Fire Environment PPE will include at a minimum: appropriate fire-resistant clothing, fire shelter, head protection and food/water to sustain operations overnight.

3.3 Equipment Maintenance, Inspection and Retirement

Short-haul Base Managers will ensure inspections of all short-haul equipment and PPE are conducted. Each program will maintain records of inspection, maintenance, and use. Records will be retained for the life of a particular product or as long as it is in use; reference Chapter 6 documentation and Appendix D for a forms list. Airworthiness Maintenance Inspectors ensure the anchor systems (cargo hook) is fully functional and that the vendor is performing the appropriate inspections to the manufacturer's recommendations.

Any repairs, or maintenance will be performed to manufacturer standards if appropriate or by the manufacturer. Contact with acids or bleach must be avoided. Chemical damage to textiles can occur and may not be visually detected. Because of this potential hazard, lines should always be stored in line bag away from batteries and chemicals. Alkalis, oxidizing and reducing agents (e.g., bleach, fire retardant, and foam) are all known to be damaging to nylon. Nylon is unaffected by hydrocarbons; however, additives in these agents may adversely affect textiles. The effects of Ultraviolet (UV) light have a detrimental effect on nylon, efforts should be made to protect the equipment from prolonged exposure. For all equipment reference manufacturer's direction regarding maintenance, service, and storage. All short-haul equipment that is removed from service (retired) must be destroyed to the point that it can no longer be used for its intended purpose. All short-haul equipment that has been retired remains government property and should be handled according to policy.

3.4 Short-haul Equipment Failure Reporting and Investigations

If any short-haul equipment failure occurs the short-haul spotter will immediately secure the equipment and supporting documentation for review and investigation. The National Helicopter Short-haul Program Manager will be notified immediately and will contact the National Technology and Develop Program (NTDP) Equipment Specialist. An Incident Report (SAFEHAUL AND/OR SAFECOM) will be submitted through the proper aviation channels. The Spotter will suspend operations until the appropriate equipment can be obtained to continue operations.

3.5 Short-haul Secondary Release

A Human External Cargo (HEC) dual hook system is a system that provides pilot actuated, hands-on-controls, release mechanisms for the HEC hook and cargo hook. The HEC hook is certified for human external cargo.

The contractor is responsible for installation and managing the maintenance, inspection oversight of the equipment, per the Supplemental Type Certificate Instructions for Continuous Airworthiness. Spotters are trained in the proper installation and system checks of the Secondary Release (HEC Beam-Hook Assembly) but are not authorized to install it.

The two approved dual hook systems are Boost Human External Cargo Dual Hook System and Onboard Systems Dual Hook Kit (see below).

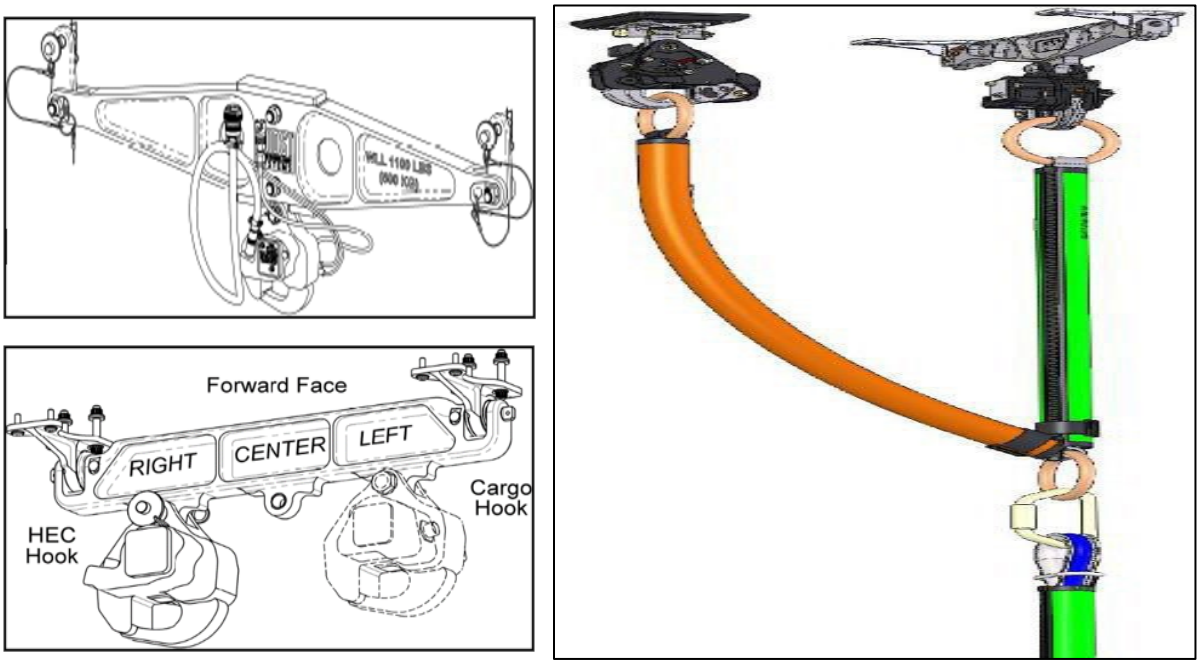


Figure 3-1 Top, A-Star HEC Dual Hook System. Bottom, Bell 407 HEC Dual Hook System. Right Onboard Systems Dual Hook Kit for Bell 206L and 407 models

3.6 Y-Lanyard or Y-Rope

Figure 3-2 Left, Boost Y-Lanyard. Right, Onboard Systems Y-Rope.

Y-Lanyard/Y-Rope attaches the haul-line to both, the HEC Hook and existing helicopter cargo hook.

Inspections and Retirement

- Inspected by a spotter prior to each use.
- Inspect stitching and material for abrasion, wear, or other damage.
- Metal adjusters and attachment ring should be free from cracks, dings, or other damage.
- Each lanyard or rope will be marked with a unique ID.
- Lanyard or rope retirement shall follow the direction from the manufacture.

3.7 Short-haul Line

Short-haul line is used to suspend (HEC) and medical equipment beneath the helicopter during short-haul operations. All programs shall utilize the Priority 1 Air Rescue ™ short-haul lines with MAP rings on each end of the line. Approved line lengths are 100, 150, and 250 feet. Minimum inventory numbers are in Appendix E, Equipment Source List.

Figure 3-3 Priority 1 Air Rescue Line with Map Rings

Inspections and Retirement

- Lines will be marked (engraved) on the thimble with each base's three letter designator and a unique number.
- Line history will begin when the line is manufactured.
- Retirement of a short-haul line may be dictated by age, or during visual inspection. Inspect lines for damage, wear, and abrasion prior to each use. Retire if exposed to chemicals or prolonged UV exposure.
- When in doubt, retire it. For further guidance regarding line wear, inspection, care, and maintenance, refer to manufacturer's specifications and guidelines.
- Line will have a maximum life of 7 years from date of manufacture.

3.8 Short-haul Line Ballast

Figure 3-4 Left, ARS 25-Pound Line Ballast. Right Lift-IT 25-Pound Line Ballast

The short-haul line ballast improves the flight profile of an unweighted line, and aids in visibility. It is attached to the attendant end of the short-haul line near the MAP ring. Prusik knots are utilized to adjust and secure the ballast in the desired location.

Inspections and Retirement

- Inspected prior to each use.
- Inspect fabric, webbing, and prusiks for abrasion, wear, or other damage. Retirement is based upon inspection only.

3.9 Carabiners

Two carabiner styles are used in the short-haul program: three-stage, and two-stage. Carabiners are designed to be loaded longitudinally. If load occurs on the side, i.e., cross gate loading, failure may occur.

Approved three-stage carabiners include the Omega Pacific™ Standard D ½" Steel NFPA Quik-Lok carabiner, ½" Steel Large D Keylock Gold NFPA ANSI, and Rock Exotica ANSI Stainless. These carabiners connect the short-haul line to the Y-Lanyard/Rope. They may also be employed to connect two lengths of line together.

The approved 2 stage carabiner is the Gemtor Model 5105 auto locking carabiner with captive pin option (pin not shown) which can be released quickly in an emergency situation. These are used at tether attachment points, short-hauler and spotter connections, and cargo connections. The captive pin is only to be employed with the attendant ring.

Figure 3-5 Left, 3 Stage Omega ½" Steel Quik-Loc. Center, 3 Stage Rock Exotica ANSI Stainless. Right, 2 Stage Gemtor 5105 Auto lock

Inspections and Retirement

- Check all parts for cracks, deformation, corrosion, wear, etc. Verify that the gate and sleeve close, lock and function properly in every respect. Inspect carabiners prior to each use.
- Retire if the carabiner arrests a fall or is exposed to extreme loading, does not pass inspection, is exposed to chemicals, or if there is any doubt about its functionality or safety.
- Retirement is based on inspection. There is no maximum in service life.
- Dust and grit may collect and add action "stiffness." Cleaning can be done with mild soapy water, completely dry and lubricate (i.e., Tri-Flow) before use.

3.10 Attendant Ring

Bourdon Forge 2004-1 3” forged steel ring. The captive pin Gemtor 5105 carabiner (two-stage) is only to be employed on the attendant ring.

Figure 3-6 Bourdon Forge 2004-1 3" Forged Steel Ring

Inspections and Retirement

- Check for cracks, deformation, corrosion, wear, etc. Inspect prior to each use.
- Retire if exposed to extreme loading, does not pass inspection, is exposed to chemicals, or if there is any doubt about its functionality or safety.
- Retirement is based on inspection. There is no maximum in service life.

3.11 Spotter/Short-hauler Harness

The Yates Heli-Ops 388™ Harness is used for both the spotter and the short-hauler. Two (2) Sizes of harnesses are available; S/M and L/XL. For short-hauler configuration, the tether is attached via girth hitch to the front chest ring. For spotter configuration, the tether is girth hitched to the aft waist ring which is connected to the spotter anchor using a two-stage carabiner. When properly adjusted, the anchor and tether will prevent the harness from extending past the plane of the door. The intent of this properly adjusted connection is to eliminate the chance of a fall. It is not intended to arrest a fall, but rather restrain a spotter within the aircraft.

Figure 3-7 Yates Heli-Ops 388 Harnes

Inspections and Retirement

- The harness must be inspected by the user prior to operation.
- Inspect stitching and webbing for abrasion, wear, or other damage.
- Check all buckles, rings, and adjusters for damage and correct function.
- Retire if subjected to a fall, the fall arrest indicator is visible, or if there is any doubt about the functionality or safety of the harness.
- Harnesses will have a maximum life of 10 years from Date of Manufacture.

3.12 Gunner Belt

The NTDP-984 Gunner Belt is used to restrain the short-haul spotter within the aircraft. The tether of the gunner belt is attached to the aircraft anchor using a two-stage carabiner. When properly adjusted, the gunner belt will not allow the spotter outside of the aircraft and is used as a fall restraint. The gunner belt is not intended to arrest a fall from an aircraft.

Figure 3-8 NTDP-984 Gunner Belt

Inspections and Retirement

- The gunner belt must be inspected by the user prior to operation.
- Inspect stitching and webbing for abrasion, wear, or other damage.
- Check all buckles, rings, and adjusters for damage and correct function. Retire if subjected to a fall, or if there is any doubt about the functionality or safety of the harness.
- Gunner belts will be stamped with the date of manufacturing and will have a maximum life of 10 years from this date.

3.13 Knife

The knife will be used for the spotter and short-hauler as the cut away knife in instances of entanglement and emergency situations. The knife sheath shall be mounted on the waist strap of the Yates harness.

Figure 3-9 Left, Knife. Right, Knife installed on a Yates harness.

Inspections and Retirement

- Check that the blades are in new condition.
- Inspect sheath stitching and condition as well as the integrity of the belt loop, and retention strap.
- Retirement of the knife and sheath are based on inspection only.

3.14 Short-hauler and Cargo Tether

The Short-hauler Tether (bottom) is girth hitched to the attachment point on the front of harness and attached by two-stage carabiner to the attendant ring during short-hauler operations. The Short-hauler Tether is girth hitched to the attachment point on the back of harness waist belt and attached by a two- stage carabiner to the Spotter Anchor during spotter operations. The Cargo Tether (top two tethers) is used for attaching cargo to the attendant ring using two-stage carabiners.

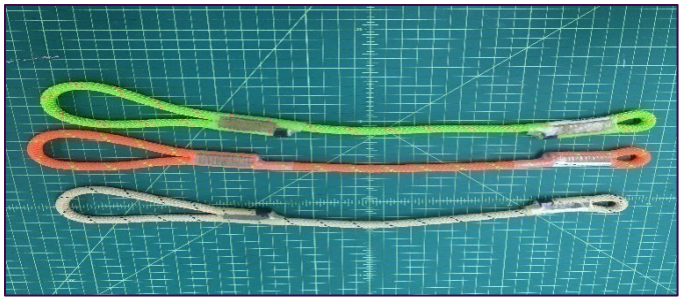


Figure 3-10 Cargo Tether and Short-hauler Tether

Inspections and Retirement

- Inspect tether prior to each use. Check for cuts, abrasion, abnormalities, and wear.
- Inspect stitched termination for broken/cut threads or damage.
- Each tether will be marked with a unique ID.
- Tether will have a maximum life of 5 years from Date of Manufacture.

3.15 Spotter Anchor

The NTDP-946 Spotter Anchor will secure the spotter tether to the aircraft connection points. Ensure that the webbing ends are double backed and secured by adjusters.

Figure 3-11 NTDP-946 Spotter Anchor

Inspections and Retirement

- Inspected by a spotter prior to each use.
- Inspect stitching and webbing for abrasion, wear, or other damage.
- Metal adjusters and attachment ring should be free from cracks, dings, or other damage.
- Each anchor will be marked with a unique ID.
- Anchor shall have a maximum life of 10 years from date of manufacture.

3.16 Patient Extraction Equipment

All programs will use commercially made Bauman Bags, Bauman Screamer Suits, 908/908M Air-Lift Rescue Vest (ARV) (Yates), Helitack Airbag™ (CMC), and Ambulatory Victim Extraction Device (AVED, Priority 1 Air Rescue).

Bauman Bag attachment point will use (2) 10mm Maillon Rapide Delta tri-links and (1) Gemtor 5105 two-stage carabiner. Each tri-link shall capture four rings on each side of the Bauman Bag and be wrench tightened. During extraction/insertion, the carabiner will capture the two tri-links and the Attendant Ring.

Figure 3-12 Left, Bauman Bag. Right, Bauman Bag Insertion/Extraction Configuration

Helitack Airbag™ attachment point will use (1) Gemtor 5105 two-stage carabiner. During extraction / insertion, the carabiner will capture the two forged steel rings and the Attendant Ring.

Figure 3-13 Left, Helitack Airbag. Right, Helitack Airbag Insertion / Extraction Configuration

Bauman Screamer suit will use (1) Short-haul Tether and (1) Gemtor 5105 two-stage carabiner. During extraction/insertion, the Short-haul Tether will capture the three rings of the Screamer Suit with a girth hitch, while the carabiner attaches to the Attendant Ring.

Figure 3-13 Left, Bauman Screamer Suit. Right, Bauman Screamer Suit with Short-haul Tether

The Yates 908(M) and Petzl Pitagor will use (1) Short-haul Tether and (2) Gemtor 5105 two-stage carabiners. One carabiner connects a short-haul tether to the attendant ring, and one carabiner will be used to connect the three rings of the device.

Figure 3-14 Left Petzl Pitagor. Right, Yates 908/908M ARV.

Inspections and Retirement

- Inspected prior to each use.
- Inspect stitching and webbing for abrasion, wear, or other damage.
- Metal attachment ring should be free from cracks, dings, or other damage.
- Each Short-haul Tether will be marked with a unique ID.
- Bauman Bags, Helitack Airbag™, Screamer Suits, 908/908M ARV, and Pitagor, will have maximum life of 10 years from date of manufacture.

3.17 Short-hauler Medical/Personal Gear Bag(s)

All programs will use any combination of the NTDP Short-haul Bag, Metolius™ El Cap, Metolius™ Quarter Dome, Metolius™ Sentinel, or the Owyhee IA Bag. Haul bags may be attached to the Attendant Ring with a two-stage carabiner or use a cargo tether and two-stage carabiner.

Figure 3-15 From left to right, NTDP Medical Bag, Metolius El Cap, Metolius Quart Dome, Metolius Sentinel, and the Owyhee IA Bag.

Inspections and Retirement

- Inspected prior to each use.
- Inspect stitching and webbing for abrasion, wear, or other damage. Inspect container for holes, cuts, abrasion, or wear.
- Retirement of haul bags is based upon inspection only.

3.18 Equipment Changes

Proposed changes in helicopter short-haul equipment shall use the equipment form (D-17) and will be forwarded to the Check Spotters and NHSHPM for concurrence. NHSHPM will then decide if proposed change warrants a SHOWT vote for change. Equipment that is determined by the NTDP Short-haul Equipment Specialist and the NHSHPM to be “like-kind,” may be approved without the equipment form or testing.

3.19 Service Life Equipment Table

Table 3-1 Service Life Equipment Table

EQUIPMENT	MANUFACTURE DATE	DOCUMENTATION REQUIRED (Appendix D)
Y-LANYARD / Y-ROPE	10 YEARS / 4 YEARS	YES
SHORT-HAUL LINE	7 YEARS	YES
SHORT-HAUL BALLAST	AS NEEDED	NO
CARABINERS	AS NEEDED	NO
ATTENDANT RING	AS NEEDED	NO
SPOTTER/HAULER HARNESS	10 YEARS	YES
KNIFE	AS NEEDED	NO
SPOTTER/HAULER TETHER	5 YEARS	YES
CARGO TETHERS	5 YEARS	NO
SPOTTER ANCHOR	10 YEARS	YES
SCREAMER SUIT/908(M)/PITAGOR	10 YEARS	YES
BAUMAN BAG/HELITACK AIRBAG	10 YEARS	YES
GEAR BAGS	AS NEEDED	NO

Chapter 4. Operations

4.1 Limitations

The NWCG Standards for Helicopter Operations provides the operating capabilities and limitations for short-haul operations:

> "Flight operations and procedures shall be conducted during daylight hours and only under Visual *Flight Reference (VFR) conditions (minimum ½ mile visibility). Daylight hours are defined as thirty minutes before official sunrise until thirty minutes after official sunset or, in Alaska, during extended twilight hours when the terrain features are readily distinguishable for a distance of at least one mile."*

Short-haul requests associated with life safety and the health and safety of firefighters, agency personnel, cooperators, and others are the priority over any other operation. Due to this priority, each short-haul program is required to maintain operational capacity for a medical response above all other mission requests. This includes appropriate personnel, qualifications, equipment, flight time, etc.

4.2 Short-haul Personnel Configurations

Configurations of the appropriate personnel will depend on the incident objectives, personnel qualifications, environment, terrain, etc. Discussions during the risk assessment will assist with assigning the best team for the incident. The criteria below on configurations will be followed:

- Medical or all-hazard missions recommends a minimum of one EMT qualified short-hauler, inserted during the first evolution.
- Initial Attack Fire missions will have at a minimum one ICT5 or higher qualified short-hauler inserted during the first evolution.
- Specialized qualifications may be considered for additional support, e.g. Faller 1 (FAL1).
- Short-haul Spotter has the discretion to determine the personnel needed based on mission types.

4.3 Reconnaissance Flight

The purposes of the reconnaissance check flight are to size up the scene, determine if short-haul is the appropriate response, and if so, collect the necessary environmental data and aircraft performance data necessary for the General Assessment of Risk (GAR) analysis). The short-haul team will also identify a suitable short-haul site.

- Flight Following during all flights is required.

- The Spotter will assist with navigation and be alert to hazards (use hazard map, watch for other aircraft, clearances, wires, changing conditions, etc.).
- The Spotter and pilot will evaluate the following short-haul site characteristics: fire behavior and firefighter safety considerations, e.g. Lookouts-Communications-Escape Routes-Safety Zones (LCES), proximity to the incident site (if insertion/extraction site is not at the incident site), approximate size, slope, rotor clearance, wind conditions, ground hazards, approach and departure routes, flight hazards, and line length configuration.
- Line length configurations may consist of a single length of line or any combination of lines connected using at a minimum one three-stage carabiner.
- Personnel already on site should assist with the gathering of this pertinent information.
- The pilot will perform a hover out of ground effect (HOGE) power check at the proposed short-haul extraction site, during which the following additional criteria will be noted: GPS location (location of staging site, if using one), outside air temperature (OAT), power (adequate or not adequate to hold hover at the site or establish positive rate of climb) and altitude.
- The information gathered during the hover check is critical for the pilot and spotter, for the ongoing risk assessment process, and to ensure the aircraft is performing within its capability.
- Consider identification of a secondary pickup, or drop-off site for contingency purposes.
- Based on the information from the reconnaissance check flight, the pilot and Spotter will make the final determination if, under existing conditions, a short-haul is within the performance capabilities and power limitations of the helicopter.
- The pilot and Spotter will then make the final decision if a short-haul is warranted after consideration of all other related factors.

4.4 Mission Briefing

A briefing shall be provided by the Spotter prior to short-haul operations and must include the pilot, helicopter manager, and to the greatest degree possible, all persons involved in the operation. As a minimum, the following shall be addressed during the mission briefing:

- Short-haul GAR
- Nature of the mission
- Location
- Fire behavior
- LCES
- Terrain
- Vegetation

- Line length
- Weather
- Landing areas
- Aircraft capabilities (load calculation, performance, W/B, etc.)
- Individual responsibilities (line management, communication/radio management, patient management)
- Cargo, if applicable
- Hazards
- Safety considerations
- Emergency procedures
- Situational awareness review

IMPORTANT NOTE: Assessment of risk is an ongoing process and shall be assessed throughout the operation. Due to the range of potential scenarios and contexts, any short-haul operation associated with recovering human remains will be planned for and executed based on the specific situation.

4.5 Helicopter Equipment Check

- Cargo: Remove items not essential to the mission and secure all other cargo.
- If applicable, external cargo baskets removed.
- Cabin configuration: As directed by the pilot, monitor adjustments as the cabin is configured for short-haul.
- Spotter tether attachment point is secure and does not interfere with the operation of or cause accidental release of the seatbelt.
- Seatbelts are secure and operational.
- Maps and mission information are secured, but accessible.
- Communications check: All radios are operational and on correct frequencies. (A radio check must be done to establish communications between the aircraft and appropriate personnel, including pilot, spotter, short-haulers, and ground crewmembers).
- Intercom system operational. Due to other radio traffic use of the “hot-mike” is not recommended.

4.6 Dual Hook System and Line Check Procedures

The Spotter is responsible for rigging the helicopter for short-haul and will ensure the completion of the following:

- Short-haul line inspected and deployed.
- Ballast bag secured.
- Secondary release system is installed, tested, and secured.
- Short-haul MAP ring connected to Y-lanyard/Y-rope with three-stage carabiner.
- Follow manufacturers inspection and release check procedures for dual attachment release checks.
- Primary Hook
    - Check 1- Electrical
    - Check 2 - Manual/hydraulic
    - Y-lanyard/Y-Rope connected to Primary Hook.
    - Check 3 - Hook Lock Indicator (Diamond in the window)
- Secondary Hook
    - Check 1 – Electrical
    - Check 2 – Manual/hydraulic
    - Y-lanyard/Y-Rope connected to Secondary Hook.
    - Check 3 – Hook Lock Indicator (Diamond in the window)
- Helicopter walk-around.

4.7 Short-hauler Operational Equipment Check (6 Points to Safety)

A Short-hauler Operational Equipment Check will be completed prior to any short-haul operation using a partner. In the rare instances where a partner is unavailable, a self-operational equipment check will be performed. All steps of the equipment check are to be performed both visually and tactilely for thoroughness. Individuals being checked will be attentive to each step of the equipment check process. If a discrepancy is found, the discrepancy will be addressed, and the check will start over from the beginning.

1. Flight Helmet - Chin strap secure. Eye protection in place.
2. Radio - Attached under the Yates harness, connected to the helmet, radio on, correct frequency, scan off.
3. Tether - Girth hitched to the Yates harness, no damage.

4. Carabiner and Attendant Ring - Carabiner attached to the tether while capturing the attendant ring. Check for functionality of all components.
5. Knife - Attached on the harness waist belt. Snap closed securing knife.
6. Harness - Buckles connected, strap ends stowed, no twists, adjusted per individual.

Thumbs-up Exchanged - Affirming completion of the 6 Points to Safety.

4.8 Spotter Check

A Spotter Check will be completed prior to any short-haul operation. All steps of the Spotter Check are to be performed both visually and tactilely for thoroughness. Individuals being checked will be attentive to each step of the Spotter Check process. If a discrepancy is found, the discrepancy will be addressed, and the check will start over from the beginning.

1. Flight Helmet - Chin strap secure. Eye protection or visor down and secured.
2. PPE shall be worn in accordance with the current NSHO and ALSE.
3. Harness/Gunner Belt - Buckles connected, strap ends stowed, no twists, tether attached, adjusted per individual.
4. Knife - Attached on the harness waist belt. Snap closed securing knife.
5. Thumbs-up exchanged affirming completion of spotter check.
6. Spotter attached to spotter anchor, carabiner functioning and allows for quick egress during an aircraft emergency.
7. Pilot will ensure that the spotter is connected to the spotter anchor.

4.9 Helicopter Short-haul Insertion/Extraction Procedures

During short-haul operations, the Spotter/Pilot may request/verify that the radio frequency is cleared for “emergency traffic” and will advise when initiating operations (sterile cockpit) and when complete with operations.

4.9.1 Short-haul Team Duties (Extraction)

1. Pilot initiates final approach to the extraction site, slows descent and stabilizes the haul line.
2. Communication is established between Short-haulers and aircraft.
3. Short-hauler relays:
    a. Winds.
    b. Known hazards.
    c. Weights.
    d. Configuration, i.e. “**Two short-haulers and Bauman bag**”.

4. Short-hauler states, "**Ready to receive**". Response from helicopter to ground crew "**inbound**".
5. Short-hauler(s) may assist pilot by calling out distances of MAP ring above the canopy and will assist pilot in calling out distances of MAP ring above ground. Short-hauler(s) should also point out any hazards in the area to the pilot. All Short-hauler radio traffic must be concise.
6. When applicable short-hauler will indicate load **"entering canopy"**.
7. Short-hauler will call distance from lowest point on the line (MAP ring/load) to helicopter **"five zero"**.
8. Helicopter responds "**Copy, five zero"** at the start of the cadence.
9. Height above ground will then be delineated by calling out **"four zero, three zero, two zero, one zero, eye level"**.
10. When the short-hauler has control of the line and the short-hauler communicates **"got it**, this indicates to pilot to hold and maintain hover.
11. When ready, the helicopter radios short-hauler to **"hook up"** and Spotter gives the "*hook up*".
12. signal simultaneously.
13. Once hooked in, a "Head Nod" acknowledging READY is completed between the short-haulers.
14. The short-hauler communicates **"ready"** and gives the "*lift***"** signal.
15. Helicopter states, **"coming up"** and lifts short-hauler(s). Short-hauler communicates "**clear of obstacles**" and gives the **"***clear of obstacles***"** signal when appropriate for forward flight.

While these communications are absolutes, real time or additional communications may be necessary.

4.9.2 Short-haul Team Duties (Insertion)

1. Pilot initiates final approach to the insertion site, slows descent and stabilizes the short-hauler(s)/load on the line.
2. Short-hauler(s) may assist pilot by calling out distances of MAP ring above the canopy and will assist pilot in calling out distances of MAP ring above ground. Short-hauler(s) should also point out any hazards in the area to the pilot. All short-hauler radio traffic must be concise.
3. When applicable short-hauler will indicate load "**entering canopy**".
4. Short-hauler will indicate when load is at "**five zero"** feet.
5. Helicopter responds "**Copy, five zero"** at the start of the cadence.

6. Height above ground will then be delineated by calling out **"four zero, three zero, two zero, one zero**."
7. When the Short-hauler is stabilized on the ground and is ready to unhook state **"secure"** and unhook. Simultaneously, the helicopter will state **"unhook"** and the spotter will give the **"***unhook***"** signal.
8. Short-hauler(s) radios the helicopter that they are clear of the line by saying **"clear"** and gives the **"***lift***"** signal.
9. Helicopter states, **"coming up"** and lifts empty MAP ring/load. Short-hauler communicates **"clear of obstacles"** and gives the "*clear of obstacles*" signal when appropriate for forward flight.

4.9.3 Inflight Considerations

- Short-haul line will be flown with line ballast to prevent excessive trailing behind the aircraft in forward flight.
- Forward flight will not exceed 50 knots with the short-haul line deployed.
- In flight spinning or position changes can be prevented by Short-hauler extending an arm or a leg.
- Radio communication quality is best if the helmet boom mic is flush against the lips and cupped by hand and the head is turned away from the wind.
- If, at any time during the transport or ferry portion of the short-haul insertion or extraction, radio communications are lost or become inadequate, the pilot and Spotter may decide to return to the staging site.
- Spotter and Short-hauler may utilize "*ok*" hand signal**.**
- If the Short-hauler(s) lose communication or wish to terminate the mission**,** initiate the **"***wave-off"* hand signal.
- Short-hauler(s) may terminate the mission for fire behavior or environmental conditions, this will be communicated by either the use of radio clear text or the "wave-off" hand signal.

IMPORTANT NOTE: Upon the completion of an actual short-haul mission with a live non-Forest Service HEC, it is suggested that the vendor Pilot notify their company's management staff. At that vendor's discretion, they can notify the FAA in accordance with the FARs for emergency deviations.

4.10 Spotter Hand Signals

These short-haul specific hand signals should be clearly visible to the intended recipient. If additional hand signals are needed, refer to the standard hand signals in the NSHO or Interagency Response Pocket Guide (IRPG).

Wave-Off:

Figure 4-1 "Wave-Off"

Hook/Unhook

Figure 4-2"Hook/Unhook."

4.11 Short-hauler Hand Signals

LIFT

HOLD HOVER

CLEAR OF OBSTACLES

WAVE OFF

ARE YOU OK? I AM OK.

Chapter 5. Emergency Procedures

IMPORTANT NOTE: There are many circumstances that can constitute an in-flight emergency. Pilots, spotters, and short-hauler must understand the significance of an inflight emergency with human external cargo (HEC). Pilots, spotters, and short-haulers must discuss in-flight emergencies and their respective roles. During an emergency is NOT the time and or place to discover that, "What you heard, is not what I meant." This is accomplished through planning, briefings, and training.

5.1 Emergency Communications and Categories

In short-haul, clear and concise communication between the spotter and pilot is critical to a successful outcome. During short-haul operations, there are two basic categories of in-flight emergencies.

- **Immediate Response**- those that require an **immediate** action (land as soon as possible).
- **Delayed Response**- those that permit a **delayed** action (land as soon as practicable).

The pilot is trained to respond to any in-flight emergencies in accordance with the Rotorcraft Flight Manual in addition to the emergency procedures outlined in this plan.

5.2 Immediate Response Emergencies (Land As Soon As Possible)

There are a limited number of emergencies that fall into this category. Emergencies are characterized by a need to transition immediately to forward flight, establish an autorotation or execute a forced landing without an external load. In this type of emergency, positive outcome may be impacted by the ability to jettison external loads quickly.

5.2.1 Examples of Possible Emergencies

- Engine Failure
- Tail Rotor Failure
- Hard-over of controls
- Engine over speed/driveshaft failure
- Compressor Stall
- Governor Failure
- Fire

5.3 Delayed Response Emergencies (Land As Soon As Practicable)

Many events, typically mechanical or environmental, fall into this category. These events are characterized by an ability to delay the departure from the short-haul hover. These events typically allow time to place the load safely on the ground prior to departing the hover.

5.3.1 Examples of Possible Problems

- Transmission/Engine/Tail Rotor Gear Box Chip Light
- Hydraulic Failure
- Oil temp/Oil pressure light
- Hydraulic temp or pressure light
- Unknown Master Caution
- Fire light
- Stuck pedal
- Fuel control or governor failure high side
- Electrical failure
- Adverse environmental conditions
- Line Entanglement

IMPORTANT NOTE: These events may not require immediate action other than communication and monitoring**.**

5.4 Pilot and Spotter Actions - Short-haul Operations

Short-haul Immediate Response Actions

IMPORTANT NOTE: **"MAYDAY, MAYDAY"** and the subsequent actions taken by the pilot and Spotter will occur almost simultaneously. The pilot will attempt to gain forward flight, which may require releasing the haul line. Any failure to immediately release the line may pose a threat to the aircraft and personnel onboard, as well as increase the risk to the short-hauler.

NOTE: The decision of any short-hauler to cut away from the line is a personal choice depending on the circumstances and best chance for survival.

Table 5-1 Short-haul Immediate Response (Land as Soon as Possible)

Short-haul Immediate Response (Land as Soon as Possible)
PILOT DUTIES
Pilot must identify this emergency accurately and without delay. Additionally, pilot must simultaneously alert the Spotter by stating **"Mayday, Mayday".**
SPOTTER DUTIES
The Spotter's response must be immediate. Additionally, the Spotter should attempt to verify the severity of the emergency and verbally confirm the pilot's intended actions.

Table 5-2 Pilot Action / Spotter Response

PHASE	PILOT STATES	PILOT ACTION / SPOTTER RESPONSE
Short- haul line rigged, w/HEC or no HEC	**"MAYDAY, MAYDAY"** (Over the short- haul operation frequency)	**Spotter:** Takes seat, fastens seat belt, and prepares for emergency landing. **With HEC on the line, SHORT-HAULER**: Assesses situation, determines best course of action. **Pilot:** release secondary; evaluate situation, release primary as necessary. **Spotter:** time permitting states **"*Line Clear*"**

IMPORTANT NOTE: HEC will only be released when the pilot determines that retention of the HEC will jeopardize the survivability of the aircraft and crew.

Short-haul Delayed Response Actions

See table below for pilot and spotter actions during an in-flight emergency or situation that may be addressed through a delayed response.

Table 5-3 Short-haul Delayed Response

Short-haul Delayed Response (Land As Soon As Practicable)
PILOT DUTIES
During a delayed response emergency, **"EXPEDITE, EXPEDITE"**, is intended as the initial alert for the crew that the short-haul must be halted due to an aircraft malfunction or environmental condition. **It should not be the only communication**. As the situation allows the pilot should advise the crew of the aircraft status and the intended duration of the flight. Safe delivery of the HEC to the nearest suitable site should happen immediately, Short-hauler will continue to make normal call out. Delays may occur when no suitable site is readily available
SPOTTER DUTIES
The Spotter should assist the pilot in locating a suitable area for the HEC.

Table 5-4 Delayed Response Pilot / Spotter Actions

PHASE	PILOT STATES	SPOTTER ACTION/RESPONSE
Short-haul Line Rigged, No Hec	**"EXPEDITE EXPEDITE"** (Over the short- haul operation frequency)	**Spotter:** Takes seat and fastens seat belt. States **"*Ready*"** **Pilot:** Release secondary and as necessary release primary. **Pilot/spotter:** Note location of jettisoned equipment for subsequent retrieval
Short-haul Line Rigged, W/Hec	**"EXPEDITE EXPEDITE"** (Over the short-haul operation frequency)	**Spotter:** Assist in locating the nearest suitable area to insert HEC. **Pilot:** Insert HEC to suitable area. **Spotter:** Takes seat and fastens seat belt, states **"*Ready*".** **Pilot:** Release secondary and as necessary release primary. **Pilot/Spotter:** Note location of HEC and equipment for subsequent retrieval

IMPORTANT NOTE: Events of an environmental nature may be resolved by waiting for the event to subside. An event of this nature requires that the pilot inform the Spotter of the actions required to address the event. If at any point continued flight is hazardous due to environmental conditions, the pilot will state **"EXPEDITE, EXPEDITE".**

"EXPEDITE, EXPEDITE" and the subsequent actions taken by the pilot and Spotter will occur almost simultaneously. The pilot will attempt to gain forward flight, which may require releasing the short-haul line. Any failure to immediately release the line may pose a threat to the aircraft and personnel onboard, as well as increase the risk to the short-hauler.

5.5 Short-haul Incident (Reporting and Investigation)

The Short-haul Spotter and local helicopter manager are responsible for reporting helicopter short-haul incidents through the proper aviation channels at the Forest and Regional levels [References: FSM 5723, NSHO] and will use a "SAFECOM" to report these incidents. (www.safecom.com)

5.6 Short-haul Accident

Notification will be made to the Forest/Unit or IMT, who in turn will notify the Regional Aviation Safety Manager and the Regional Aviation Officer to begin the accident investigation process. The helicopter manager or Spotter will secure as evidence, all short-haul equipment and documentation, Load Calculations, manifests, the aircraft, aircraft records, fuel truck and all its associated records. The accident site will be secured and maintained as evidence for the subsequent investigation.

Chapter 6. Short-haul Documentation

6.1 Check Spotter or Short-haul Base Manager Duties

It is the responsibility of the Check Spotter or Short-haul Base Manager to ensure that proper short-haul documentation is current and maintained properly. This includes, but is not limited to documentation of training, qualifications, proficiency, equipment, incident reports, and short-haul missions.

Manage Short-haul Spotter and ground crew member qualifications, records, and associated equipment documentation.

Ensure inspections of all short-haul equipment and PPE are conducted. Ensure AARs are completed after all short-haul operations.

6.2 Records and Reports—General

IMPORTANT NOTE: All electronic records should be backed up to an external drive or server. A hard copy of electronic record will be printed at least once annually. An electronic data storage system can be used for this purpose.

Record keeping is mandatory for administering short-haul operations. Accurate records and reports on short-haul activities, equipment use, training, and incidents/injuries shall be maintained.

All short-haul logs are official documents and will be kept on the forms contained in Appendix D or electronic equivalent. Short-haul logs will be archived indefinitely.

All short-haul equipment that is removed from service (retired) must be destroyed to the point, that it can no longer be utilized for its intended purpose. Any equipment that requires documentation must show retirement date on the “Equipment Log” when removed from service.

6.3 Short-haul Injury Reporting

All short-haul injuries, in addition to being reported through established agency protocols, will be reported through the Regional Helicopter Operations Specialist, and forwarded to the National Helicopter Short-haul Program Manager.

6.4 Training, Certification and Proficiency Records

Copies of certifying and recertifying documentation will be maintained in individual permanent records and forwarded to the IQCS Account Manager.

6.5 Short-haul Unit Log

All short-hauls, spots and related information must be entered into the short-haul unit log, found in Appendix D or electronic equivalent and shall be readily available for review. The Spotter or Base Manager will ensure information is entered into the logs in a timely manner and the logs are kept current.

6.6 Short-hauler Training Records

The training record for initial training and recertification of Short-haulers shall document each individual step in the training. Competency at each level of the training must be demonstrated by the trainee before the lead trainer shall permit advancement to the next step (Appendix D). Each Short-hauler will maintain a record of training, proficiency, and operational short-hauls in the Short-haul Unit Log.

6.7 Spotter Training Records

The training record for Spotters shall document each individual step in the training. Competency at each level of the training must be demonstrated by the trainee before the Check Spotter(s) shall permit advancement to the next step (Appendix D). Each Spotter will maintain a record of training, proficiency, and operational spots in the Short-haul Unit Log.

6.8 Equipment Master Records

All equipment requiring documentation will be assigned a unique identification number. The number will be retired with the piece of equipment. The equipment below shall have a log assigned to document inspections and service life. At a minimum, each log shall identify the ID#, date of manufacture and date of retirement for each piece of equipment. All inspections will be notated by date and who performed the inspection. Any deficiencies, wear, irregularities, etc., shall be noted and brought to the attention of a Spotter. Reference Chapter 3-Equipment for requirements for marking and inspecting equipment:

- Bauman Bag / Helitack Airbag
- Screamer Suit / 908 ARV
- Spotter/Short-hauler Harness
- Gunner Strap
- Short-haul Line
- Y-Lanyard/Rope
- Spotter Anchor
- Short-haul Tether
- Mass Extraction Kit

Chapter 7. Risk Management

7.1 Strategic Risk Assessment

This Strategic Program Risk Assessment (Appendix M) addresses the hazards associated with short-haul operations only. All other hazards associated with helicopter operations are addressed in PMS-530-1 NWCG Aviation Risk Management Workbook, Appendix L.

The pre-mission Risk Assessment Tool to be used for short-haul will be the General Assessment of Risk (GAR) Model (Appendix G). The GAR will be implemented prior to every mission and readdressed as conditions warrant.

The GAR model allows for time critical risk assessment and generates communication concerning the mission risks. This communication then helps identify the risk and leads to the appropriate mitigation. The GAR model 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. It 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.

IMPORTANT NOTE: It is important to remember that risk management is an ongoing process that continues throughout any aviation mission.

7.2 Program Operational Pause Protocols

If an incident or event occurs, use the "Program Tactical Pause, Stand Down, and Shutdown Protocols" to determine the appropriate level of response and correct communications to the program and leadership.

For more information on these protocols see the appropriate Appendix.

Appendix A. New Base Start-Up Procedures

This appendix is intended to provide the framework of good communication and the expectations of a newly activated short-haul program. A request is made with the *National Aviation Safety and Management Plan, Aviation Proposal Template* to the Helicopter Operations Specialist Committee (HOSC). Additionally, the following elements must be provided in a briefing paper for clarity (electronic links to documents are acceptable).

- Proposed host base and location
- Proposed implementation date
- Facility infrastructure
- Regional Fire and Aviation Management organizational chart
- Forest Fire and Aviation Management organizational chart
- Local Helitack/Aviation Program organizational chart
    - Provide list of current or expired short-haul spotters/short-haulers to include years of operational experience.
- Regional and Forest Aviation Leadership staffing to support short-haul and quality assurance.
- Ability to support the current/approved National Short-haul structure.
- Ability and willingness to support the National Fire Response effort (crew/aircraft mobilization)
- Ability and willingness to support administrative functions, i.e. annual meetings, task groups, etc.
- Ability and willingness to support National Training events, i.e. facilities to host a training event, attendance to out of area training events.
- Most recent Regional Quality Assurance review of proposed host base, i.e. Helibase Review

Short-haul Startup Timeline

One Year Prior to Activation

October/November: New base requests are due in October/November, if approved, the activation year would not be the following calendar year.

Example: Oct/Nov 2021 request is submitted; activation would occur in 2023.

January/February: Base activation requests are processed, and selections are completed. All bases requesting short-haul activation will be notified of request status. Crew points of contact (POC) are established for new start up programs.

POC's should be a higher supervision leader in a program, preferably an identified spotter candidate. This person will be made known to the National Assistant Helicopter Operations Specialist (NAHOS) upon notification of the crew's activation approval. POC's are established one year prior to activation to provide a direct coordination link between the NAHOS and the new startup program(s).

Upon notification of activation approval, startup programs are responsible for managing the following:

- Notification to helicopter vendor of additional contract requirements of the short-haul mission, if applicable.
- Participation on monthly short-haul conference calls once established.
- Development of facility and other program support needs (if previously identified in activation request).
- Shadowing an active Forest Service Short-haul program for at least one week for mission familiarization prior to program startup.
- Recommend one of the identified spotter candidates attend a Critical Incident Stress Management (CISM) training.

November: Programs and their POC's are expected to:

- Participate in the Fall Short-haul meeting as determined by the NAHOS.
- Be notified of consolidated training venue location and dates as developed during the Fall Short-haul meeting.
- Continue to work through staffing requirements, including additional funding requests (if previously identified in activation request) to meet Short-haul Operations Plan standards.
- Identify SSHO standard of at least two short-haul spotter trainees with a maximum of three.
- Develop plans and identify at least three EMT's to meet SSHO's standard prior to short-haul training.

- Ensure qualification and training requirements will be met as identified in SSHO.
- Continue to acquire established SSHO medical and short-haul equipment.

Activation Year

January: During the activation year, startup programs and their POC's are expected to:

- Continue to work toward activation activities as identified above.
- Monitor helicopter vendor progress towards meeting all agency contract and SSHO requirements.
- Recruit and fill crew positions while managing SSHO requirements for potential spotter trainees, EMT's qualification, and recommended program size.
- Participate in the response development to the Region and Forest review of the SSHO's Risk Assessment. This will be presented to the stand-up program by an identified Quality Assurance team or NAHOS prior to the scheduled Pre-Operational Quality Assurance Review.

Two Months Prior to Activation Date

- Startup programs will participate in a New Activation pre-season Quality Assurance Review prior to short-haul training. This will be conducted in accordance with the US Forest Service Short-haul Quality Assurance Plan consisting of the evaluation of:
    - Helicopter solicitation award and status. Gauge vendor preparation for short-haul mission.
    - Base ops plan reflecting SSHO's QA requirements are complete.
    - Verification of Regional and Forest organizations per SSHO's QA requirements Mitigation plan required for any current or anticipated organizational vacancies.
    - Review of the Regional and Forest response to Selected Risk Factors as provided by the NAHOS.
    - Verification that short-haul and medical equipment is received, configured, identified (labeled) and documented in accordance with SSHO.
- Prior to consolidated short-haul training, completion of CRM N9059-Crew Resource Management 7 Skills training requirements (3.0 hours) by all base startup personnel prior to attending short-haul training.

Activation: Successful activation is contingent upon the following:

- Completion of short-haul specific CRM training (1.5 hours) by all base startup personnel while at short-haul training.
- Completion of short-haul training by all base startup personnel. SSHO's qualification and staffing requirements for spotter, haulers, and EMT's are still enforced even if candidates are not successful during training.

- Helicopter vendor pilots and aircraft approved for short-haul mission performed prior to training venue (to be coordinated by Agency Helicopter Inspector Pilot, Aircraft Inspectors and NAHOS).
- Completion of letters of delegation for new Check Spotters, if applicable, by Regional Helicopter Operations Specialists (HOS) in concurrence with NAHOS.
- Completion of the mid-season Quality assurance review. This date will be determined by the Quality Assurance Team during the New Activation pre-season QA Review process.

New Base Startup Short-haul Program Waivers

Check Spotter Development: New short-haul base startups in Forest Service Regions that do not yet possess existing short-haul programs, will not meet established SSHO's criteria of personnel possessing one year of previous operational experience for developing Regional Check Spotters. This requirement will be waived only in this instance of the initial year of new base startup activation. Subsequent development of regional check spotters will meet all established SSHO's criteria.

End of Year Reports

In addition to the National Helitack Data Questionnaire, Base Managers will be responsible for completion of an additional set of short-haul specific questions. Contact the NHSHPM prior to short-haul training to obtain the current list of questions.

Appendix B. Short-haul Training Syllabus

I. Introduction

It is essential that short-haul personnel are well trained, proficient, and competent in their role. Decisions made by pilot, spotter and short-hauler can determine the success or failure of the mission.

II. Training Objectives

Ensuring short-hauler trainee success through high quality training opportunities, fostering crew and program cohesion while instilling in them confidence, resiliency, and a skill set. Initial short-haulers will participate in a blended curriculum beginning at their home unit by successfully completing a self-paced online training. In addition, all short-haulers are required to attend an Initial and Annual hosted Short-haul Training Academy where they will take part in an instructor led classroom and filed course.

III. Training Aids

NWCG Training Learning Portal, SSHO's optional PowerPoint presentations and videos, individual lesson aids, lesson materials, and training records. Instructors should also integrate past experiences and real-life scenarios to enhance the concepts and learning environment.

IV. Cadre Responsibilities

- Check Spotters (Lead Trainer) ensure standardization at all levels of training and follow training syllabus.
- Spotters (Trainers) ensure proficiency is obtained by each trainee short-hauler prior to moving them to the next stage or certification of training.
- Pilots ensure aircraft preparedness, understand training objectives, and provide feedback to the instructors and trainees.
- Equipment Manager(s) ensure the adequate amount of equipment is available to support short-haul operations and supervise inspections to ensure all short-haul equipment is properly inspected and use records are completed.

  It is important to ensure that students are focused on the material being delivered while they maintain appropriate coaching in the classroom and field stations.

Unit 1 – Pre-Academy

I. Training Objectives:

Introduce Initial short-haulers to the Forest Service Short-haul Program prior to arriving at an Instructor Lead Academy.

Integrating a Pre-Academy curriculum will enable instructors to provide a scenario-based training allowing initial haulers to focus on the overall operation.

II. Training Aids:

NWCG Wildland Fire Learning Portal, Assigned Equipment, medical Extraction Equipment, and Documentation.

III. Lesson Outline:

1. Initial 3-Hour Crew Resource Management Training
    A. Human Factors, 7 Critical Skills of CRM, Lessons Learned Case STUDIES, PAO vs Civil Aircraft Operations.

2. NWCG Wildland Fire Learning Portal
    A. Complete required training via NWCG Wildland Fire Learning Portal, allowing access to returning short-haulers, and Spotters for questions and to monitor progress.
        i. History of Short-haul
        ii. Forest Service short-haul equipment
        iii. Operations
        iv. Process of Pilot Testing Standards
        v. Qualifications

3. Short-hauler Equipment
    A. Introduce Initial Short-haulers to their assigned equipment allowing for hands-on review and fitting for operational use.
        i. Flight helmet
        ii. Patch cord
        iii. Harness
        iv. Short-hauler tether (tan color)

v. 2-Stage carabiner and attendant ring

vi. Knife

4. Extraction Equipment and Gear Bags

A. Introduce Initial Short-haulers to their provided medical extraction devices, basic overview of patient packaging, and how and where this equipment is provided and delivered during a medical extraction.

i. Cargo tethers (Green and Orange color)

ii. Ambulatory extraction device(s)

iii. Non-ambulatory extraction device(s)

iv. Haul bags (NTDP Medical bag, and Metolius bags)

5. Short-haul Equipment Checks / 6 Points to Safety

A. Provide all short-haul participants with instruction on the proper steps to conduct an equipment check.

i. Helmet

ii. Radio

iii. Tether

iv. Carabiner and attendant ring

v. Knife

vi. Harness

B.

6. Risk Assessment / GAR

A. Conduct a group GAR with Initial Short-haulers lead by a returning Short-hauler or Spotter.

7. Hang Tower

A. Provide Initial Short-haulers the opportunity to hang in their assigned short-haul equipment. Once comfortable, introduce haul bags and extraction equipment for fitting, configuration, and familiarization.

i. Single Short-hauler

ii. Double Short-hauler

iii. With haul bags

iv. With ambulatory devices

v. With non-ambulatory devices

8. Communications and Hand Signals
    A. Provide all short-haul participants with instruction on the proper communications sequence and the use of hand signals. Provide instruction while not deviating from policy and standardization.
        i. Single Short-hauler
        ii. Double Short-hauler
        iii. With haul bags
        iv. With ambulatory devices
        v. With non-ambulatory devices

Unit 2 – Short-haul Academy Field Week

I. Objectives:

This week will consist of mixed Initial and returning Short-hauler/Spotters participating in a National Standardized Training ensuring policy and procedures are being met.

Initial Short-haulers will arrive having completed a blended self-paced and instructor lead training at their home unit. Academy Cadre will ensure all students have completed their Pre-Academy training and can display knowledge in basic short-haul operations.

Initial Short-haulers will display their knowledge by participating in field stations to demonstrate competencies and standardization prior to moving to live flights.

II. Lesson Outline:

1. Program Introduction
   A. Provide the Initial Short-haulers an introduction to the Forest Service Short-haul Program from the National Short-haul Program Manger prospective.
      i. Allow for questions and dialogue to provide for a quality conversation and expectations for the training week, as well representation for the future.

2. Annual Crew Resource Management
   A. The expectation is to provide quality engagement in CRM topics as it relates to the short-haul mission while introducing past operations/missions in helicopter extraction. This engagement should be instructed by the hosting unit and a qualified CRM Instructor.

3. Short-hauler Equipment Checks / 6 Points to Safety Demonstration
   A. Initial Short-haulers will demonstrate an error free operational check with a partner prior to moving on to the hang station. These checks will focus on 6 areas of the Short-haul equipment. It is important that the operational check provides assurance that the equipment is orientated correctly and in working order. This is not an inspection of the quality of the gear.
      i. Helemt
      ii. Radio
      iii. Tether
      iv. Carabiner and attendant ring
      v. Knife
      vi. Harness

4. Hand Station Demonstration
    A. Initial Short-haulers will display their knowledge on the proper rigging and equipment configuration. Initial Short-haulers will continue to build experience with equipment checks before and during this unit. In addition, Initial Short-haulers will be instructed to use their attendant knife and identify a cutting location while being elevated on a static line. Area of focus while hanging from the tower is as follows.
        i. Single Short-hauler
        ii. Double Short-hauler
        iii. With haul bags
        iv. With ambulatory device
        v. With non-ambulatory device

5. Communication Tower Demonstration
    A. Initial Short-haulers will display their knowledge of proper communication sequences and the use of hand signals. Initial Short-haulers will continue to build experience with equipment checks before and during this Unit.

    B. Initial Short-haulers should be familiar with this operation prior to arriving at the academy. This station will provide assurance that they can communicate and operate as a short-hauler. Ensure students understand and demonstrate the skills needed prior to moving the Initial Short-hauler to live flights.

6. Aircraft Briefing
    A. Provide all short-haul participants with a safety briefing for the helicopter being used for the training. Give participants a walkthrough of secondary release, helicopter door configurations, and other configurations.

Unit 3 – Live Flights

I. Objectives:

Provide all short-haul participants with flight operations to demonstrate use of equipment, hand signals and communications. Medical, fire, and mass extraction scenarios should be incorporated into flight operations.

II. Training Aids:

- Helicopter, open/typical terrain, veteran short-haulers for assistance, short-haul equipment (amount based on number of initial short-haulers), and SSHO Chapter 2 Figure 2-1 for minimum evolutions for short-hauler qualification

III. Lesson Outline:

1. Terrain
   A. Discuss short-haul site terrain, open and typical, prior to flight operations.
   B. Review landing area site terrain, prior to flight operations.

2. Communications
   A. Review verbal and non-verbal communications prior to flight operations.

3. Flight Operations
   A. Conduct live flight operations, satisfying minimum picks with appropriate personnel and gear configurations.
   B. Conduct live flight operations incorporating scenarios for medical, fire, and mass extraction.

Spotter Training Syllabus

I. Introduction

It is essential that short-haul personnel are well trained, proficient, and competent in their role. The Short-haul spotter is a key position for ensuring the safe insertion and extraction of personnel and equipment to a medical situation. Decisions made by pilot, spotter and short-hauler can determine the success or failure of the mission.

II. Training Objectives

- Ensuring spotter trainee success through high quality training opportunities, fostering crew and program cohesion while instilling in them confidence, resiliency, and a skill set.

III. Training Aids

- SSHO's optional PowerPoint presentations and videos, individual lesson aids, lesson materials, and training records.
- Instructors should also integrate personal experiences to enhance the concepts and learning environment.

IV. Cadre Responsibilities

- Check Spotters (Lead Trainer) ensure standardization at all levels of training and follow training syllabus. Conduct final qualifications for spotter trainees, trainee must be from a base other than Check Spotter's.
- Spotters (Trainers) ensure proficiency is obtained by each trainee spotter prior to moving them to the next stage or certification of training.
- Pilots ensure aircraft preparedness, understand training objectives, and provide feedback to the instructors and trainees.

Unit 0 – Pre-Academy

I. Objectives:

- Introduce short-haul spotter candidates to the responsibilities, duties, and expectations of the Short-haul Program prior to arriving at an instructor lead academy and training with a Check Spotter. Integrating a pre-academy curriculum will enable short-haul spotter candidates to arrive at academy training with a known base of knowledge to begin from.

II. Training Aids:

- NWCG Wildland Fire learning Portal, home unit SMEs and qualified short-haul spotter(s).

III. Lesson Outline:

1. Review initial short-haul spotter familiarization slide show.

Unit 1 – Policies, Procedures and Documentation

I. Objectives:

- Discuss compliance with all applicable agency policies and procedures.

II. Training Aids:

- SSHO, copy of Documentation forms, local Helibase Operations and Aviation Plans.

III. Lesson Outline:

1. Review Agency Policy and Guidelines
   A. Review SSHO
      i. Spotter prerequisites
      ii. Spotter training requirements
      iii. Proficiency schedules

2. Procedures
   A. Base short-haul operations plan
   B. Off Forest procedures
   C. Supporting large incidents/geographical areas
   D. Booster short-haul plan (if applicable)

3. Documentation and Record Keeping Forms
   A. Training and Qualifications

B. Operational Short-haul
C. Training/Proficiency Short-haul
D. Case Incident Reports
E. SAFECOM/Mishaps
F. AAR's/FLA's
G. Equipment Tracking

Unit 2 – Environmental Hazards and Limitations

I. Objectives:

- Identify potential hazards encountered during short-haul operations. Demonstrate risk management evaluation skills.

II. Training Aids:

- SSHO, SAFECOM's, NSHO, Flight Manual, IRPG, and Safety Bulletins.

III. Lesson Outline:

1. Environmental Hazards -Discuss hazards that could have an impact on short-haul operations. These include but are not limited to those identified below.
   A. Weather Conditions
      i. Winds and instability. Any of the following conditions may be an indicator of hazardous landing, short-hauling, or firefighting conditions:
         a. A good indicator on fires is the smoke column.
         b. Is it shifting direction?
         c. Laying horizontal or blowing downhill?
         d. Is it plume dominated?
      ii. Visibility
         a. Visual Flight Rules, Min. of ½ mile visibility
         b. Anticipate Civil twilight
         c. Inversion, low hanging smoke

2. Pilot and spotter should look for weather and wind signs that could indicate turbulence or downward movement of air at destination.
   A. Fire Environment
      i. Fire Behavior, current and anticipated
      ii. LCES
      iii. Fire Traffic Area
      iv. Incident within and Incident I.C.
   B. Terrain

i. Shadows, low light conditions
ii. Upslope/Downslope of active fire area
iii. Site selection risks and hazards

C. Review weather and environment related SAFECOM's

3. Mission Limitations - Discuss the effects the following can have on mission success.
   A. Aircraft performance
      i. Altitude
      ii. Temperature
      iii. Payload
      iv. Weight and Balance (Center of Gravity)
      v. Fuel loading
   B. An onsite hover out of ground effect power check is completed before live operations commence.
   C. Discuss site selection to achieve better helicopter performance.
   D. It is important that the Trainee understands the flight manual, power settings and limitations, max temps, torque, etc.
   E. Crew Limitations
      i. Fatigue
      ii. Hazardous attitudes ("Can Do" attitude)
      iii. Self-sustained (how much food/water)

4. Risk Management
   A. Review Strategic Program Risk Assessment
   B. Review pre-mission risk assessments and associated mitigations. To include, but not limited to:
      i. Manifests
      ii. Load Calculations
      iii. Weather
      iv. Fuel loading
      v. Flight hazards
      vi. Communications
   C. General Assessment of Risk (GAR) model is the standard deliberate risk assessment tool for mission planning.
      i. Allows time critical risk assessment
      ii. Generates communication with mission participants, i.e., Pilot, Spotter, Short-hauler
      iii. Identify appropriate mitigations

iv. GAR model is not intended to replace pre-mission planning, briefings, and debriefings

D. Mission
   i. Risk management is a continual process throughout the entire mission
   ii. Pilot has the ultimate responsibility for mission safety, the spotter must use sound judgment and abort the mission if conditions exits that he/she deems unacceptable or unsafe.

Unit 3 – Short-haul Operations

I. Objectives:

- Demonstrate proper verbal/non-verbal communications.
- Effective communications with Pilot, all crew members, and flight following units. Knowledge of Secondary release checks.
- Proper inspection and care of equipment.
- Sound understanding of Emergency Procedures.

II. Training Aids:

- SSHO, Secondary release, Spotter Anchor, associated Spotter PPE.

III. Lesson Outline:

1. Communications
   A. Reconnaissance Flight
      i. Scene size up
      ii. Identify the insertion site
         a. Proximity to incident/fire (hot/cold black and line/ballast considerations)
         b. Size
         c. Slope
         d. Rotor clearance
         e. Wind conditions
         f. Hazards (wires, snags, loose debris/gear, etc.)
         g. External load collision hazards
         h. Identify secondary insertion/extraction contingency site
      iii. Info collected during the recon flight will aid in the briefings and completion of the GAR
   B. Pre/Post Mission Briefings
      i. Topics that may be addressed
         a. General Assessment of Risk completion

b. What is the nature of the mission?
c. Location of the mission
d. Known hazards
e. Trigger points for aborting the mission
f. Alternate methods for extraction
g. Emergency procedures
h. Communications, loss of communications

C. Operational Communications
   i. Flight following with Helibase, Dispatch, ATGS, etc.
   ii. Frequency/radio management duties (FM/AM – Pilot/Spotter)
   iii. Spotter/Pilot may request/verify that the radio frequency is cleared for "emergency traffic"
   iv. Advise Flight Following entity when initiating operations (sterile cockpit) and when complete with operations
   v. Adjust radios to reduce potential external distractions
   vi. Once inserted, establish communications with short-haul personnel, ensure positive communications with Helibase, Dispatch, ATGS, etc.

D. Aircraft and Short-hauler Communications
   i. Communications between the aircraft and the short-hauler are both verbal and non-verbal
   ii. All verbal communications must be clear, concise, and understood
   iii. Verbal communications are reinforced with hand signals

2. Equipment
   A. Inspection
      i. Review short-haul equipment requirements and standards in SSHO
      ii. Review short-haul equipment tracking documentation
   B. Instruct trainee on the proper method for primary and secondary hook checks
      i. Discuss secondary hook capabilities and functions
      ii. Primary Hook check process
      iii. Secondary Hook check process
      iv. Ensure spotter understands installation process, visual check will be performed by spotter after mechanic/pilot installation
   C. Instruct trainee on the proper method for installing the spotter anchor to aircraft
      i. Discuss verbal confirmation check from Pilot once Spotter is attached before live operations
      ii. Discuss the need for quick spotter egress during an aircraft emergency.
   D. Discuss with trainee the Short-hauler and Spotter Operational Equipment Checks
      i. Spotter is responsible to ensure all equipment is in working order and fitting properly
   E. Short-haul equipment failures

i. Reporting procedures

F. **The spotter is ultimately responsible for monitoring the use and care of all short-haul equipment.**

3. Emergency Procedures - Pilots are highly encouraged to be present at this stage of training.
   A. Roles and Duties
      i. The pilot and spotter must be thoroughly familiar with and able to accomplish emergency procedures
      ii. How can the spotter assist within the cockpit?
      iii. Discuss the importance of dialog between the pilot and the spotter during an inflight emergency
   B. Emergency Actions/Communications and Categories
      i. Immediate Response Emergencies
         a. Discuss what might cause this response
      ii. Delayed Response Emergencies
         a. Discuss what might cause this response
   C. Have trainee demonstrate emergency procedures
   D. Have trainee demonstrate emergency egress from the aircraft
   E. Short-haul Incident and Accidents
      i. Responsibilities for reporting
   F. **It is imperative that the Spotter maintain composure during an emergency**.

IV. Unit 4 – Helicopter Evolutions

I. Objectives:

- Demonstrate effective verbal and non-verbal communications.
- Under the direct supervision of a qualified spotter, trainee shall complete the required evolutions listed in SSHO Chapter 2.
- Final Qualification shall take place under the supervision of a Check Spotter from a base other than the Spotter trainee.

II. Training Aids:

- SSHO, Secondary release, Spotter Anchor, associated Spotter PPE, and cylinder.

III. Lesson Outline:

1. Inert Load Evolutions

Inert Load evolutions may consist of negotiating the Interagency Helicopter Pilot Practical Test Standards (IHPPTS) course, Open Terrain and Typical Terrain. It is important to subject the trainee to differing haul line lengths and environmental conditions. The intent of inert load evolutions is to minimize personnel exposure while still providing quality vertical reference experiences.

A. Under the direct supervision of a Short-haul Spotter, Trainee will demonstrate:
    i. Primary and secondary hook checks
    ii. Proper attachment of haul lines and carabiners
    iii. Spotter Check (personal equipment check)
    iv. Cockpit communications
    v. Flight following procedure
    vi. In-flight procedures
    vii. Site selection
        a. Proximity to incident/fire (cold/hot black and line/ballast considerations)
        b. Size
        c. Slope
        d. Rotor clearance
        e. Wind conditions
        f. Hazards (wires, snags, loose debris/gear, etc.)
        g. External load collision hazards

2. Emergency Procedures

3. Live Evolutions

1. During live helicopter evolutions trainee will demonstrate skills, knowledge, and competencies for insertion/extraction of HEC's. Typical terrain should include fields, light timber, open canopy, rock out cropping, slope, etc. Should at any point during live helicopter evolutions the trainee makes repetitive procedural errors, the instructor will return the trainee to the appropriate level of training for review (ground, tower, etc.)
    A. Under the direct supervision of a Shor-haul Spotter, Trainee will demonstrate:
        i. Primary and secondary hook checks
        ii. Proper attachment of haul lines and carabiners
        iii. Spotter Check (personal equipment check)
        iv. Cockpit communications
        v. Flight following procedures
        vi. In-flight procedures
        vii. Site selection
            a. Proximity to incident/fire (cold/hot black and line/ballast considerations)
            b. Size
            c. Slope

d. Rotor clearance
e. Wind conditions
f. Hazards (wires, snags, loose debris/gear, etc.)
g. External load collision hazards
h. Emergency Procedures

1. Final Evaluation
   A. Once the Trainee has completed the Spotter training syllabus under the supervision of a qualified spotter, the respective Base Manager or Regional Check Spotter will request a Final Evaluation be conducted.
   B. Should at any point during live helicopter evolutions the trainee makes repetitive procedural errors, the instructor will return the trainee to the appropriate level of training for review (ground, tower, etc.)
   C. The following tasks will be completed under the supervision of a check spotter for final qualification. This evaluation will be completed by a check spotter from another base.
      i. Demonstrate knowledge of the inspection, care, and maintenance of short-haul equipment.
      ii. Demonstrate ability to rig the helicopter for short-haul, provide a safety briefing and conduct a safety check of short-haul personnel without procedural error.
      iii. Demonstrate knowledge of emergency procedures.
      iv. Demonstrate ability to work with the pilot.
      v. Demonstrate knowledge of risk assessment and mission structure.
      vi. Before the check ride evaluation, all required evolutions have been performed as outlined in Certification and Proficiency chart, Chapter 2.
      vii. Successful completion of check spotter evaluation.

Appendix C. Short-haul Training Plan

General

Short-haul training promotes standardization of procedures and equipment and increases quality assurance, while promoting efficiency inside the whole program. The training provides individuals with high quality instruction from the most qualified individuals within the national program. It also promotes networking between individual programs which can foster cultures associated with crew cohesion and highly reliable organizations.

National Short-haul Training Cadre

The National Short-haul Training Cadre (NSHTC) should be comprised of individuals from different Regions and bases, with check spotters as the primary cadre leaders. The NHSHPM position will provide oversight to the NSHTC, a check Spotter and veteran Spotter will participate at each scheduled training to promote annual standardization. Cadre selections should be finalized by January allowing Program Manager's sufficient time to plan and coordinate training sessions and travel.

The NSHTC may be comprised of the following positions:

- National Assistant Helicopter Operations Specialist
- One Check Spotter
- One Veteran Spotter
- Veteran Short-haulers
- Helicopter Inspector Pilot

All positions can be staffed by veteran short-haulers or individuals with expertise and qualification for the position. Short-haul trainees and cadre members should not hold any collateral role or duty in the listed ICS functions. Helicopters would be coordinated between the NHSHPM, Short-haul Base Managers and Regional HOS for each training session.

National Short-haul Training Incident Management Team (IMT)

When conducting big academy style training events, one key component of large-scale training is staffing key ICS positions to plan and coordinate logistics and training sessions. As the program develops and depending on complexity, the ICS structure will adapt to specific needs and opportunities and additional positions will be adjusted as needed. The National Short-haul Training Cadre would be looking to the local unit hosting the training to fill the positions identified. The training academy IMT can be comprised at a minimum of the following positions:

- Incident Commander
- Safety Officer

    - EMT
- Logistics
- HEBM / ASGS
    - Two HMGBs
    - DECK
    - ABRO
- PAO/PIO (NHSHPM might need to assist)

Standardized Short-haul Training

To conduct short-haul training an indoor classroom and Helibase with proximity to typical terrain is required.

Considerations for a location include:

- A training room large enough to accommodate the necessary number of cadre and trainees.
- An operations room that facilitates all the helibase requirements associated with consolidated short-haul training. Computer, PowerPoint projector and screen needed.
- Additional conference/meeting room for accommodating additional group needs (HPI, QA, and HOS's).
- Pre-established logistical requirements (Cache Orders, Food Vendors).
- Helibase is large enough to accommodate the necessary number of aircraft.
- Pre-identified typical terrain short-haul sites.

More than one helicopter may be needed on site with ALL pilots for those contracts. Helicopter and training may be held before or during the official MAP start to save on ferry costs and vendor per diem. Check rides and aircraft carding will be completed prior to training (short-hauler and spotter need to be involved in PTS phase three and four).

Appendix D. Documentation

The following forms are required for proper tracking, documentation, and accountability for crews and individuals participating in the Forest Service Short-haul Program. The forms may be completed and kept electronically and/or physically depending on the crew's preference. Documentation records will be reviewed thoroughly during Quality Assurance Audits. The blank forms will be found on the Forest Service Short-haul Pinyon site to limit the length of this document and ease of use. The forms are:

- D-1 Unit Log
- D-2 Individual Log
- D-3 Spotter/Short-hauler Harness Log
- D-4 Short-haul Tether Log
- D-5 Short-haul Line Log
- D-6 Y-Lanyard/Y-Rope Log
- D-7 Spotter/Short-hauler Set Log
- D-8 Mass Extraction Kit Log
- D-9 Bauman Bag/Helitack Air Bag Log
- D-10 Screamer Suit Log
- D-11 Gunner's Belt Log
- D-12 Spotter Anchor Log
- D-13 Initial Certification for Short-hauler
- D-14 Annual Re-Certification for Short-hauler
- D-15 Initial Certification for Spotter
- D-16 Annual Re-Certification for Spotter
- D-17 Forest Service Short-haul New Equipment Testing Approval Request Form
- D-18 Short-haul Operational Report

Appendix E. Equipment Source List

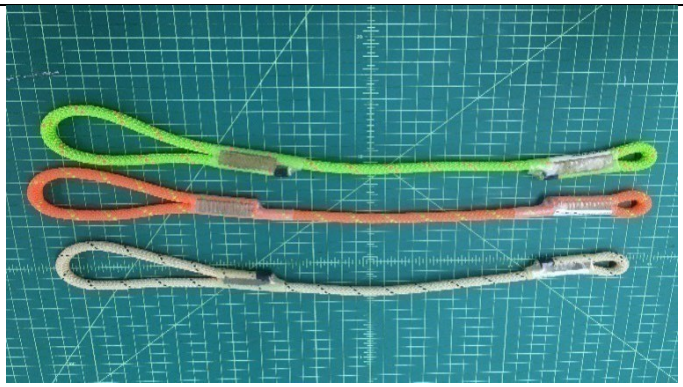
Table E 1 Equipment Source List

Picture of Item	Description and Equipment Source List
	**<u>Short-haul Lines, 100', 150' and 250'</u>** 1) Priority 1 Air Rescue 250' Dyneema Short-Haul Lines with thimbles and map rings at each end. #100-R1012-250 (one) 2) Priority 1 Air Rescue 150' Dyneema Short-haul Lines with thimbles and map rings at each end. #100-R1012-150 (two) 3) Priority 1 Air Rescue 100' Dyneema Short-haul Lines with thimbles and map rings at each end. #100-R1012-100 (One) **Procurement Source:** Priority 1 Air Rescue
	**<u>Line Ballast (option 1)</u>** ARS (Air Rescue Systems) 25-pound Line Ballast System. (Two) *only two needed select option 1 or 2 **Procurement Source:** Air Rescue Systems (ARS), Air Rescue Systems

Picture of Item	Description and Equipment Source List
	**Line Ballast (option 2)** Lift-It 25-pound Line Ballast System. WLC-C-14MM-2-Z-O-25LB-SP (Two) *only two needed select option 1 or 2 **Procurement Source:** NTDP Short-haul Equipment Specialist (special order item) Lift-It (909)-469-2251 Note: Prusiks do not come with the Ballast
 	**BOOST Y-Lanyard System** BOOST HEC System for use on the AS-350 and Bell 407 models (Order one system and one Backup) **Procurement Source:** BOOST Human External Cargo Systems 604-561-4014 **Onboard Systems Y- Rope Kit** Onboard Systems HEC Kit for use on the Bell 206L/407 models (Order one system and one Backup) Procurement Source Onboard Systems International 1-800-275- 0883

Picture of Item	Description and Equipment Source List
	**Carabiners** 72 kN ½" Steel Large D 3-Stage Quik-Lok Gold, NFPA or 72 kN ½" Steel Large D Keylock 3-Stage Gold NFPA ANSI (Six) **Procurement Source:** Air Rescue Systems (ARS) Omega Pacific
	**Rock Exotica** 40kN 3-Stage Rock Exotica ANSI 359 Certified Steel Carabiner – Model CS2AA or 40kN 3-Stage Rock Exotica ANSI 359 Certified Steel Carabiner – Model CSLPAA (with lanyard pin) (Six) **Procurement Source:** GSA or Rock Exotica
Pictured without captive pin 	**Model # 5105** Gemtor Model #5105 two-stage auto-locking carabiner **with captive pin** option. Gate strength: 3600 lbs. meeting ANSI Z359.12. Tensile strength: 10,000 lbs. (Two per crewmember and two per Screamer Suit and one per Bauman Bag plus backups) **Procurement Source:** Gemtor, http://gemtor.com/rescue.htm#carabiners

Pictured with the Gemtor Carabiner 	**<u>Attendant Ring</u>** Bourdon Forge 2004-1 3" forged steel ring. (copy of Forgecraft FC5011) (One per crewmember plus a few backups) **Procurement Source:** DJ Associates, http://catalog.dj-associates.com/item/military-hardware/round- rings/2004-1 Or Bourdon Forge

Picture of Item	Description and Equipment Source List
	**<u>Spotter/Short-haul Harness</u>** 388-Yates Heli-Ops Harness. UL classified to meet NFPA 1983/2012 edition standards. (One per crewmember plus a few backups) S/M and L/XL most fit in S/M **Procurement Source:** Yates Gear
	**<u>Short-haul and Cargo Tether</u>** (One per spotter/short-hauler, one per haul bag, plus a few backups) BlueWater Short-haul and Cargo Tether. 22" in length, one large loop and one small loop ends. Individual serial # and date of manufacturing listed on label. **Procurement Source:** NTDP Short-haul Equipment Specialist (specify Short-hauler or Cargo Tether)

	**<u>Spotter Anchor</u>** NTDP Tether Attachment NTDP946 (secondary option) **Procurement Source:** NTDP Short-haul Equipment Specialist
	**<u>10mm Maillon Rapide Delta tri-links</u>** (Two per Bauman Bag, plus two backups) **Procurement Source:** High Angle Associates

Picture of Item	Description and Equipment Source List
	**<u>Bauman Bag</u>** No longer Available for purchase, use Helitack Airbag item # 724247 "Short-haul" model Item # 728002 **Procurement Source:** CMC Rescue
	**<u>Helitack Airbag</u>** (Two) Item # 724247 **Procurement Source:** CMC Rescue

	**Bauman Screamer Suit** No longer Available for purchase, use AVED or 908/908M **Procurement Source:** CMC Rescue
	**908/908M Air-Lift Rescue Vest (ARV)** SKU 908 or 908M **Procurement Source:** Yates

Picture of Item	Description and Equipment Source List
	**Petzl Pitagor** SKU: C060AA00 **Precurement Source:** Rock N Rescue
	**Patch Cords** HCC-A5B-C00 Cord Adapter from U-94 to Bendix-King Coiled. (One per radio) *if using DPH radios **Procurement Source:** Gibson-Barnes
	**Patch Cords** Relm (BK) KNG Adapter with Nexus Plug (One per radio) *if using KNG radios Item # AP-A019-NX-Gentex **Procurement Source** Astra Radio Communications

	**Rescue Randy** Item # 9000 (One) **Procurement Source:** SIMULAIDS Rescue Randy *weight should be representative of an average individual.

Picture of Item	Description and Equipment Source List
	**Knife** (One per harness plus a few backups) **Procurement Source:** NTDP Short-haul Equipment Specialist (specify right- or left-handed sheath)
	**Haul Bag** (Three) NTDP 'Short-Haul Bag' **Procurement Source:** NTDP Short-haul Equipment Specialist
	**Haul Bag (color does not matter)** (Two) 'El Cap' SKU# ELCA001 37" x 18", 9600 cubic inches, 8 lbs. **Procurement Source:** Metolius

	**Haul Bag** 'Quarter Dome' SKU# QUAR001 27" x 16" x 10", 4600 cubic inches, 5 lbs. 1 oz. **Procurement Source:** Metolius

Picture of Item	Description and Equipment Source List
	**Haul Bag** 'Central' SKU# EXPR001 21.5"x 15" x 9", 2380 cu in, 2 lbs. 10 oz. **Procurement Source:** Metolius
	**Owyhee IA Bag** **Procurement Source:** https://owyheegroup.com/

Appendix F. Interagency Short-haul Operations Quality Assurance

Introduction

The United States Forest Service and National Park Service Short-haul programs have identified several opportunities to align practices, equipment, and procedures. The areas that have already seen and will continue to develop benefits by aerial extraction are resources, personnel, equipment, training standards, operations in support of public, each agency's employees, incident management teams, and interagency cooperators. While the founding doctrines between the two agencies have differences, the mission to insert and extract personnel from difficult terrain, environments, and situations continues to be the common objective.

Purpose

The purpose of the Interagency Short-haul Operations Quality Assurance (QA) review is to ensure that all Forest Service and National Park Service Short-haul Programs are meeting the intent of their respective Short-haul Operations Plans and providing a Quality Assurance Program. This information will also be used to provide a detailed report to the appropriate Aviation staff to ensure the Quality Assurance Program is progressive, appropriate, and consistent with the mission.

Applicability

The format contained in the Interagency Short-haul Operations Quality Assurance Job Aid was developed by the NWCG Helicopter Short-haul Unit. This document may be revised or updated as needed or applicable.

All short-haul programs should have adequate time, as acknowledged by the evaluators, to respond to the evaluation deficiency and to identify corrective action planned or already taken.

The following items may be needed for the QA review:

- Helibase Operations Plan
- Unit Aviation Plan
- Latest Base Review Documentation
- Short-haul Equipment Records
- Spotter/Hauler Records
- Short-haul Ops Plan
- Aircraft
- Unit Emergency Response Plan

Team composition

The operational QA review team may consist of:

- Regional Aviation Manager(s)
- Helicopter Operations Specialist(s)
- Regional Short-haul Check Spotter(s)
- Aviation Maintenance Inspector (AMI)
- Helicopter Pilot Inspector (HPI)
- Safety and Training Specialist

Responsibility and Instruction for Completion

Aviation management at the national or regional level is responsible for conducting the evaluation. Schedule of reviews should be conducted in accordance with the applicable agency's policy.

Complete each section using the key code found below. Indicate the rating given for that section by selecting green, amber, or red. Provide comments on what is needing improvement to obtain a rating of fully compliant. Not all items in the job aid are required to be reviewed by the Quality Assurance team, the team lead will identify which items will not be reviewed.

The following is recommended as an overall approach:

- The Short-haul Base/Program Manager should use the evaluation job aid to prepare for the visit by the team. It can also be used as a means of self-evaluation throughout the season.
- To cover the functional area in a reasonable amount of time, it is recommended that each member of the evaluation team cover a separate section of the functional area, with others on the team completing their assigned area.
- A closeout with local Line Officers/Park Superintendents, regional Aviation members, and local fire/SAR management to review all aspects of the program is essential. A copy of the Interagency Short-haul Operations Quality Assurance Job Aid will be provided to the appropriate local, regional, and national leadership.
- The appropriate regional Aviation Leadership or Short-haul Specialist should conduct a formal follow-up to ensure corrective action has been taken to rectify deficiencies.

Routing and Filing

Formal submission to the local line manager/Park Superintendent or their designee is essential, with follow-up reply from the local unit to ensure the corrective actions have been accomplished. Regional aviation management should keep past evaluations on file to ensure that items identified in previous visits have been addressed.

Base: **Inspection Date:**

Table F 1 Contract Information

CONTRACT INFORMATION
Hosting Unit:
Availability Period:
Contracting Officer:
Phone Number:
Contracting Officer Representative:

Table F 2 Contact Information

CREW CONTACT INFORMATION
Please contact _____ regarding Program/ Crew Supervisory inquires.
Please contact _____ regarding Short-haul inquires.
Program Manager:
Assistant Program Manager:
Address:
LOCAL UNIT FIRE STAFF / PARK STAFF
Fire Management Officer / Chief Ranger
Name:
Office:
Cell:
Email:
Deputy Fire Management Officer / Deputy Chief Ranger
Name:
Office:
Cell:
Email:
Unit Aviation Officer
Name:
Office:
Cell:
Email:

Table F 3Crew Qualification Information (Optional

Qualification	Number Qualified Personnel	Number Trainee Personnel
FFT1		
ICT5		
HMGB		

HEBM		
ASGS		
AOBD		
HEAM		
HEAC		

Table F 4 Short-haul Duties (Assigned)

Name	Duties
Name	(Medical, Documentation, Training, Assurance, etc.)

Table F 5 Summary of Action Items

Due Date	Requirements or Recommendations	Action	Date Completed

Administrative

Table F 6 QA Review Criteria, Personnel

Review Criteria	Qty	Remarks
Number of First Year Short-haulers:		
Number of Veteran Short-haulers:		
Total Number of Qualified Short-haulers at Base:		
Number of Qualified Spotters:		
Number of Trainee Spotters:		
Number of Qualified EMTs/Paramedics:		

Table F 7 QA Review Criteria, Other

Review Criteria	Remarks
Annual CRM Training Completed by All Pilots, Spotters and Short-haulers: Yes No	
Check Spotter Available at Base: Yes No	
Check Spotter Designation on File: Yes No	
How Often Does a Check Spotter Visit the Base?	
What Obstacles Impede the Efficient Management of a Short-haul Program:	

Table F 8 Code Key for Program Evaluation

Fully Compliant (FC) (GREEN)	Needs Improvement (NI) (YELLOW)	Not In Compliance (NC) (RED)

SHORT-HAUL AIRCRAFT

Table F 9 Short-haul Aircraft

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Aircraft make/model:		N/A	N/A	N/A	
Pilot carded for longline and short-haul operations					
Short-haul pilot certification on file					
Weight and balance calculations are completed for all short-haul operations					
Spotter/Managers are aware of weight and balance parameters					

CARGO HOOK (BELLY HOOK)

Table F 10 Cargo Hook

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Cargo hook last inspected: Date:		N/A	N/A	N/A	
Inspection of documented cargo hook					
Maintained in accordance w/manufacture's recommendations					

HEC HOOK

Table F 11 HEC Hook

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Annual inspection completed					
Inspection Logs current/up to date					
Meets inspection criteria					
Meets service life limitations					

HELICOPTER/HELIBASE OPERATIONS AND UNIT AVIATION PLANS

Table F 12 Plans

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Unit aviation plan addresses short-haul operations					
The base operations plan addresses short-haul operations					

SHORT-HAUL REFRENCES ARE AVAILABLE (BASE/ROAD)

Table F 13 Short-haul References

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Agency specific short-haul operations plan					
Safety Alerts (Related to short-haul)					
Information bulletins (Related to short-haul)					

SAFETY AND TRAINING REFRENCES ARE AVAILABLE

Table F 14 Training References

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Short-haul hazards/incidents being properly documented and submitted using SAFECOMS					
Reportable injuries related to short-haul					
Proficiency requirements for short-haulers being met					
Proficiency requirements for spotters being met					
Proficiency requirements for pilots being met					
Proficiencies are being tracked					
Booster Checklist being used					
GAR models being completed for short-haul operations					

Equipment

SHORT-HAUL LINES

Table F 15 Short-haul Lines

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Number with unique ID					
Meets inspection criteria					
Inspection logs current/up-to-date					
General Condition					
Meets service life					

SHORT-HAUL LINE BALLAST

Table F 16 Short-haul Line Ballast

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Meets requirement					
Secured to short-haul line					
General condition					

CARABINERS

Table F 17 Carabiners

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Meets operations plan requirements					
Carabiners are inspected after use					
Inspection responsibilities are known					
Criteria for inspection known					
Criteria used to retire a carabiner known					

HARNESS

Table F 18 Harness

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Approved for short-haul operations per plan					
Meets inspection criteria					
Inspection logs up-to-date					

KNIFE

Table F 19 Knife

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Connected to person					
Blades are sharp					

SPOTTER ATTACHMENT POINT

Table F 20 Spotter Attachment Point

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Installed correctly					
Adjusted appropriately					
Meets inspection criteria					
Stamped with manufactured date if applicable					

SHORT-HAUL TETHER

Table F 21 Short-haul Tether

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Meets inspection criteria					
Appropriately attached to harness					
Inspections being conducted					
Inspection being documented					
Stamped with manufactured date if applicable					

HELMETS

Table F 22 Helmets

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Meets Agency requirements					
Avionics / Patch Cords are in serviceable condition					

Short-haul Operations

OPERATIONAL CRITERIA

Table F 23 Operational Criteria

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Criteria used to determine a short-haul mission					
Criteria used for site selection					
Criteria used for aircraft descending below the canopy					
Information the spotter is responsible for supplying					
Have the short-haul emergency procedures been briefed					
Proficiency short-hauls take place in typical terrain					
Are after action reviews performed after each short-haul					

Short-haul Proficiency Evaluation

PROFICIENCY CRITERIA

Table F 24 Short-haul Proficiency Evaluation

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Location of operation					
Number of short-haulers to be deployed					
Mission as applicable					
Team Selection					
Risk Assessment completed					
Manifest and Load Calculation completed					
Missions as applicable					

AIRCRAFT CONFIGURATION

Table F 25 Aircraft Configuration

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Aircraft configured					
Doors are open and locked or doors are removed					

SHORT-HAUL RIGGING

Table F 26 Short-haul Rigging

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Y-rope/lanyard attached to aircraft appropriately					
Line attached to the Y-rope/lanyard appropriately					
Carabiners installed correctly					

IN-FLIGHT PROCEDURES

Table F 27 In-Flight Procedures

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
High level recon					
Low level recon					
Identify primary and alternate sites					
Site adequately identified					
Identify hazards as appropriate					
High hover power check completed					
Positive rate of climb established					

SHORT-HAUL SEQUENCE

Table F 28 Short-haul Sequence

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Pilot/spotter effectively positions over short-haul site					
Spotter/Pilot initiates and follows short-haul sequence					
Short-hauler/Spotter/Pilot communication is clear, concise, and efficient					
Spotter clears aircraft before directing aircraft movement					
Short-haulers follow sequence in operations plan					
Spotter gives clear identifiable and appropriate hand signals					
Adequate rotor clearance maintained					

Medical

PERSONNEL AND RECORD KEEPING

Table F 29 Medical Personnel and Record Keeping

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Total number of EMTs, AEMTs, Paramedics					
All EMS personnel have current required certificates on file					
Requirements are being met or appropriately addressed					

TRAINING

Table F 30 Medical Training

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Medical Training is documented					
Documentation specifies topics, total hours, and attendees					
Both EMS and Non-EMS crewmembers are attending					

MEDICAL EQUIPMENT

Table F 31 Medical Equipment

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Short-haul medical equipment is available and serviceable					
All medications and equipment are not expired					

Equipment and Unit Logs

EQUIPMENT LOGS

Table F 32 Equipment Logs

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Adequate format for equipment logs and backup logs					
Backup copies is achieved and available					
Equipment logs up-to-date, legible, and complete					
Equipment logs consolidated in one location					
Responsibility for maintaining equipment logs known					
Inspection logs describe condition of equipment					

UNIT LOGS

Table F 33 Unit Logs

EVALUATION CRITERIA	LAST REVIEW	FC	NI	NC	REMARKS
Individual short-haul records complete					
Backup copies are achieved and available remotely					
Master short-haul records complete					
Master short-haul records consolidated in one place					
Responsibility of individual records known					

Evaluation Team Members

Table F 34 Evaluation Team Members

Name	Phone Number	Duty Location	Position

Appendix G. GAR Forest Service Short-haul Risk Assessment

General Assessment of Risk (GAR) Model

The GAR model allows for time critical risk assessment and generates communication concerning the mission risks. This communication then helps identify the risk and leads to the appropriate mitigation.

The GAR model can be applied in a variety of situations. It can be used to help identify programmatic risk and is efficient enough to be utilized as a pre-mission risk assessment tool. The GAR model is not intended to replace pre-mission planning, briefings and debriefings, or post action follow-up, but to 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 difference in the same rating categories is identified all team members will re-evaluate the mission and address any mitigation prior to continuing with the mission.

It 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.

The GAR model should be applied to helicopter missions as appropriate. All short-haul personnel should receive training on the GAR model and its use. Short-haul program managers/spotters will be responsible for implementing the GAR model with all members of the team.

A GAR Risk Assessment model, which creates a GO/NO-GO decision tool, should be conducted individually by each member of the Team prior to the mission on the Operational/Mission Risk Assessment Worksheet. Individual scores will be compiled on the Spotters/Manager Assessment Worksheet and reviewed and discussed by all members of the Team. Mitigation if any will be discussed and documented on the Worksheet.

Operations that have a total post mitigation score in the amber range can be conducted with pilot and Spotter concurrence. Short-haul operations with a post mitigation score in the red will need line officer or IC approval to proceed with the mission.

Additional information on risk management can be found in Appendix M of this plan.

Table G 1 Operational Risk Assessment

Operational Risk Assessment Worksheet Risk Rated 1 – 5 for each category. Mitigation should be considered for each category, particularly when rated higher than 3.	Spotter	Pilot	EMT/Short-hauler	Short-hauler	Team Mitigation Score (Average)
Supervision Presence, accessibility, and effectiveness of leadership for all teams and personnel. Leaders are not task overloaded. Clear chain of command.					
Planning Adequate mission planning time with planned face to face briefings. Team input solicited. Urgency not driving the mission. SOP's being followed, required equipment on-site. Airspace (TFR, FTA) Identified other aircraft known.					
Team Selection Level of individual training and experience. Team cohesiveness and atmosphere that values input/self-critique.					
Team Fitness Level of overall physical fitness of team. Level of crew member's rest/fatigue and overall morale. Team members with major life distractions.					
Communication Infrastructure: Radio communications clear throughout area of operations, communications plan established and checked. Last minute changes in the plan can be clearly communicated to IC/Ops and agreed upon or face to face re-briefing.					
Contingency Resources Known resource availability/response time for back-up plan or accident response. Shared freq. & known capabilities.					
Environment Extreme temperatures, elevation, difficulty of terrain (aspect, foliage, slope, etc.) long approach, remoteness, current and expected weather, proximity to active fire.					
Incident Complexity Activities that require special technical knowledge or skills. Number of variables that impact the performance of the mission. How well understood and how controlled are those variables? Pace of operations, are other factors driving tempo? How much are we relying on perfect human performance for a successful outcome?					
TOTAL					

GREEN (8 – 13) LOW RISK	AMBER (14 – 30) MODERATE RISK	RED (31 - 40 HIGH RISK
Proceed With Mission	Proceed With Caution	Implement Measures Prior to Proceeding

The ability to assign numerical values or "color codes" to hazards is not the most important part of risk assessment. Team discussion is critical to understanding the risks and how they will be managed. If the team's consensus mitigation score stays in the red, they will need Line Officer or IC approval to proceed with the mission.

Crew/Team Mitigations:

Table G 2 Team Mitigations

IC/Line officer Signature:

Risk Control Categories

Supervision

Supervisory Control considers how qualified the supervisor is and whether effective supervision is taking place. 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 condition.

Planning

Planning and Communication should consider how much information you, your team, and other resources with whom you may be interacting have: Does everyone have the same information? How accurate is the information? Is there adequate time to plan for and evaluate the existing and emerging conditions? What is the availability of contingency resources and how reliable is the communication infrastructure? Can effective CRM be established with this information?

Team Selection

Team selection for the stated mission should consider the knowledge, skills, proficiency, and competence of the individuals. On occasion individuals may have to be replaced during the operation, which will require an assessment of any new team members and how they will be able to interact with those already engaged.

Team Fitness

Team fitness should consider the physical and mental state of the crew to include the short-haulers, spotter, pilot, and helicopter. The amount and quality of duty/rest a team member has had as well as an evaluation of all internal and external stress are important factors to consider.

Communication

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

Contingency Resources

If the plan experiences failure what contingency is in place? Backup resources that can assist if needed. Contingency resource planning accomplished with cooperators. Evaluate shared communications plan and frequencies. Has alternate plan been evaluated?

Environment

Consider area of operation that would influence performance of the aircraft to include but not limited to: density altitude, temperature, wind, topography, etc. Known factors such as terrain, forest canopy, site selection should be eyed with caution as the operational environment is very dynamic.

Incident Complexity

Evaluate the experience level of the team. Generally, the longer one is exposed to a hazard, the greater are the risks. The situation includes considering how long the environmental conditions will remain stable and the complexity of the work. Potential for large fire growth or medical response and multiple resources responding to incident both ground and air.

Appendix H. National Short-haul Operations Working Team Operating Guidelines

Background

The Forest Service chartered the National Emergency Medical Short-haul Working Team (NEMSHWT) in December of 2013 to develop and oversee an emergency medical short-haul program. After the establishment of the short-haul program and to mindfully expand the program to provide standardization and operational oversight, the Washington Office (WO) Director, Fire and Aviation Management chartered the National Short-haul Steering Committee (NSHSC).

The NEMSHWT charter has been rescinded and the NSHSC charter has expired. Since 2016, five emergency medical helicopter short-haul modules located on five national forest units have been operational. With the establishment of the short-haul program and an operational working team, the necessity of the HSHSC is no longer required. However, the continuation of the National Short-haul Operations Working Team (SHOWT) is requested.

Purpose

The SHOWT will develop and oversee short-haul operations in support of fire suppression, all-hazard incidents, and non-fire operations including support to other federal agencies, agency partners, and cooperators to ensure compliance with Federal Aviation Regulations and agency policy. The SHOWT recommend short-haul mission requirements, contract development for operational compatibility, training, equipment, crew structure and facilities, data management systems, policies, and procedures for the National Short-haul Program.

Authority

The SHOWT is chartered by the Helicopter Operations Specialist Committee (HOSC). The deliberations within SHOWT are exempt from the Federal Advisory Committee Act under section 04 of the Unfunded Mandates reform Act of 1995.

The SHOWT reports to and receives direction from the Chair of the HOSC. The HOSC authorizes the Chair of the SHOWT to convene meetings, schedule agenda items, make contacts, negotiate work assignments, operational changes in policy, equipment, and procedures, and make commitments. The SHOWT may charge members or technical specialist with tasks or create working groups.

Membership and Organization

Short-haul Operations Working Team (SHOWT) are all voting members and is comprised of:

- National Helicopter Program Manager for Short-haul
- Regional Helicopter Operations Specialist (2) from regions with current programs (one will be Co-Chair)

- Short-haul Check Spotters (2)

The SHOWT may use technical specialist for support or focus on specific issues. These positions my include but are not limited to:

- National Helicopter Operations Specialist (NHOS)
- Aviation Maintenance Inspectors(s) (AMI)
- Helicopter Pilot Inspector(s) (HPI)
- Regional Aviation Safety Manager (RASM)
- NTDP Equipment Program Specialist

The terms of tenure for the SHOWT will be for the duration of these guidelines.

The Co-Chair will assume duties in the absence of the Chair.

Cooperation and Coordination

The SHOWT communicates any significant updates or changes with the HOSC.

The National Helicopter Program Manager for Short-haul is an advisor to the NWCG Helicopter Short-haul Unit (HSHU). The HSHU is comprised of the SHOWT and Department of the Interior, National Park Service that have active short-haul operations. The HSHU is under the direction of the NWCG Interagency Helicopter Operations Subcommittee.

Standard Operating Guideline Approval

These guidelines are effective as of the date of approval and shall remain in effect until revised or revoked.

Approved

NATHAN ALEXANDER

Digitally signed by NATHAN ALEXANDER
Date: 2024.01.11 16:43:02 -07'00'

Chair, Helicopter Operations Specialist Committee (HOSC)

Appendix I. Short-haul for Fire Operations Equipment List

Individual Short-hauler Equipment List:

- 1 - Hard Hat
- 1 - Nomex Shirt and Pants
- 1 - Leather Gloves
- 1 - Line Pack
- 1 - Fire Shelter
- Water and food
- 2 - Fusees
- 16 - AA Batteries
- 1 - Programmable Radio
- Navigational tools (GPS, compass, maps, etc.)
- 1 - Individual First Aid Kit (IFAK)
- 1 - Headlamp
- 1 - Roll of Flagging

Fireline Tools/Equipment Per Insertion (70 Pounds):

- 1 - Hand Tool Per Hauler
- 2 - Stroke Chainsaw (Engine)
- 2 - 30oz Saw Fuel
- 2 - 30oz Bar Oil
- 1 - Chainsaw (Electric)
- 2 - Batteries per saw (Electric)
- Additional Cutting Assortments as Needed (Falling Axe, Wedges, Files, Etc.)
- 2 - Rolls of Fiber Tape
- 1 - 00’ of Parachute Cord
- 2 - Additional Fusees
- 1 - Bastard File
- 1 - Weather Kit
- 1 - Additional Box of AA Batteries (24 Singles)
- 1 - IC Kit (Incident Organizer, Pen/Pencil, Paper, Etc.)

Overnight Gear (50 Pounds):

- 1 - Tent Fly
- 2 - Sleeping Bags
- 4 - Trash Bags
- 36 - Hours of Food
- 3 - Gallons of Water
- 2 - Rolls of Toilet Paper
- 2 - Pack Out Bags
- 2 - Fuel Stove
- 2 - Stove Fuel

Appendix J. Medical Coordination, Training and Equipment

EMS Coordinator Position

This position is built to function as the lead within a crew for medical coordination between local medical direction, training, crew EMS personnel, and the Short-haul Medical Group within SHOWT. The EMS Coordinator will help develop crew training and oversee internal crew medical functions. Duties and responsibilities for the EMS Coordinator are as follows:

- Lead for crew EMS training and documentation: including but not limited to; medical training logs, medical equipment inspections, medical scenario library, and equipment evaluations.
- Organizes training for both EMT's and non-EMT crewmembers to establish cohesion through training. The amount of training and types of training will be determined by crew needs and level of certifications present.
- Verifies and maintains certification documentation for EMS personnel.
- Identifies Continuing Education (CE) deficiencies and opportunities locally.
- Maintains a relationship with local Medical Program Director (MPD) or organizing body for medical direction.
- May fill the position of EMS Coordinator on QA Review Team.
- Serves as crew contact to SHOWT Medical Group.

Medical Training

Basic equipment familiarization and packaging will be conducted at Short-haul Training. Patient packaging and medical training will be conducted at the programmatic level following directives of the Local Medical Director under the supervision of the Local/Crew EMS Coordinator. Medical training will be documented for EMS Personnel and non-EMS crewmembers. The documentation will consist of the topic being covered, the hours spent in the training under that topic, and a list of who attended the training.

For training purposes each module will maintain separately from the operational equipment (1) BLS Bag, (1) O2 Stand-alone Bag, and (1) AED trainer. The training kits will enable each module to train crewmembers with the tools and instruments that will be used in the field. Training can be conducted with the actual tools and instruments, and not alter the bag contents for operational use.

Medical Equipment

The Short-haul Medical Equipment Package provides a standardized platform for EMS personnel to stabilize, and transport patients by short-haul. The IFAK, BLS, and O2 Stand-alone bags are designed with the minimum contents. Additional equipment can be added allowing flexibility as level of training and protocol allow. Maintenance of the medical equipment will be within the manufacture's recommendation. All equipment will be kept available, serviceable, and within expiration dates when applicable. Each Short-haul module will be required to have a minimum of two (2) complete Short-haul Medical Equipment Packages. This will include:

- (1) Individual First Aid Kit (IFAK) for each EMT/Attendant
- (2) BLS Bags
- (2) O2 Stand-alone Bags
- (2) Spine Stabilization Kits
- (2) AEDs

Short-haul Medical Equipment Packages

Individual First-Aid Kit

Table J 1 Individual First-Aid Kit

Qty	Unit	Category	Item
1	Each	Airway	Numask CPR Mask Basic CPR Kit
1	Each	Instruments / Tools	Shears EMT 5.5in
1	Each	Instruments / Tools	NAR Combat Application Tourniquet (CAT)
1	Each	Dressings / Bandages	Israeli Emergency Bandage 6in
4	Each	Dressings / Bandages	4x4 Gauze Pad
1	Roll	Dressings / Bandages	Gauze Roll 3"X5yd
1	Each	Dressings / Bandages	Quikclot Combat Gauze Z-Folded LE, 3"X4yds
2	Pair	Other	Titongrip SE Blue Nitrile Exam Glove L Or M
1	Each	Bag (Choose One Per Emt)	NAR Operator BLS/IFAK Bag
1	Each	Bag	Conterra Infinity Expedition Modular Medical Pack
1	Each	Bag	Rip-Away EMT Pouch

Short-haul BLS Bag

Table J 2 Short-haul BLS Bag

Qty	Unit	Category	Item
1	Each	Airway	Cyclone Pocket BVM Resuscitator
1	Each	Airway	King LT-D Airway Kit, Size 3
1	Each	Airway	King LT-D Airway Kit, Size 4
1	Each	Airway	King LT-D Airway Kit, Size 5
1	Each	Airway	Nasopharyngeal 26 Fr Airway w/Lubricant
1	Each	Airway	Nasopharyngeal 28 Fr Airway w/Lubricant
1	Kit	Airway	Oral Airway Guedel Disp. Airways 8 Sizes
1	Kit	Instrument/Tools	BP Cuff And Stethoscope Combo
1	Each	Instrument/Tools	NAR Suction Device
1	Each	Instrument/Tools	Fingertip Pulse Oximiter
1	Each	Instrument/Tools	Shears EMT 7.5in
1	Each	Instrument/Tools	NAR Combat Application Tourniquet (CAT)
1	Each	Instrument/Tools	Sharps Container (For Epi Kit)
1	Kit	Instrument/Tools	Optimum EZ Glucometer Kit
1	Each	Spine / Splint / Traction	AMBU Perfit ACE-Adult
1	Each	Spine / Splint / Traction	SAM Splint Original
1	Each	Spine / Splint / Traction	SAM Pelvic Sling II
1	Each	Spine / Splint / Traction	Slishman Traction Splint
1	Each	Dressings / Bandages	Israeli Emergency Bandage 4in
1	Each	Dressings / Bandages	Israeli Emergency Bandage 6in
6	Each	Dressings / Bandages	4x4 Gauze Pad
2	Each	Dressings / Bandages	5x9 Gauze Pad
2	Each	Dressings / Bandages	8x10 Gauze Pad
1	Each	Dressings / Bandages	Trauma Dressing, Sterile, 10x30
2	Each	Dressings / Bandages	Triangular Bandage
1	Each	Dressings / Bandages	Coban 3in
4	Roll	Dressings / Bandages	Gauze Roll 3”X5yd
1	Roll	Dressings / Bandages	Elastic Wrap 4in
2	Roll	Dressings / Bandages	1”X10yd Adhesive Tape
1	Each	Dressings / Bandages	Asherman Chest Seal
1	Each	Dressings / Bandages	H&H Sterile Burn Blanket
1	Each	Dressings / Bandages	Quikclot Combat Gauze Z-Folded LE, 3"X 4yds
1	Tube	Other	Glutose 15gm
4	Each	Other	Biohazard Bag 1 Gal
4	Pair	Other	Titongrip SE Blue Nitrile Exam Glove M
4	Pair	Other	Titongrip SE Blue Nitrile Exam Glove L
1	Each	Other	Numask CPR Kit W/Case
1	Each	Organizer	TCCC Medical Pack Insert, Empty W/ Name
1	Each	Bag Options	Conterra Flightline Aero-Medical Pack

02 Standalone Bag

Table J 3 O2 Standalone Bag

Qty	Unit	Category	Item
1	Each	Tank / Regulator	O2 Cylinder Size D Carbon
1	Each	Tank / Regulator	O2 Regulator
2	Each	O2 Delivery	Adult NRB Mask
2	Each	O2 Delivery	Adult Nasal Cannula
2	Each	O2 Delivery	Extra Tubing
1	Each	Airway	Cyclone Pocket BVM Resuscitator
1	Each	Airway	King LT-D Airway Kit, Size 4
1	Each	Airway	Numask CPR Kit W/Case
1	Each	Airway	Nasopharyngeal 26 Fr Airway W/Lubricant
1	Each	Airway	Nasopharyngeal 28 Fr Airway W/Lubricant
1	Each	Airway	NAR Suction Device
1	Kit	Airway	Oral Airway Guedel Disp. Airways 8 Sizes
1	Each	Other	Tank Wrench - Plastic
2	Pair	Other	Titongrip SE Blue Nitrile Exam Glove M
2	Pair	Other	Titongrip SE Blue Nitrile Exam Glove Lngrip
1	Each	Bag	Conterra Basic 02 (Sub For Special Order)

FS Short-haul Spine Stabilization Equipment

Table J 4 Short-haul Spine Stabilization Equipment

Qty	Unit	Category	Item
1	Each	Stabilization Equipment	Traverse Rescue Stretcher
1	Each	Stabilization Equipment	Folding Backboard (Plastic)
1	Each	Stabilization Equipment	Conterra VSB Vacuum Immobilizer
1	Kit	Stabilization Equipment	Conterra Extremity Splint Kit
1	Each	Stabilization Accessories	Kendrick Extrication Device (KED)
2	Each	Stabilization Accessories	Spider Straps
2	Each	Stabilization Accessories	STAT Head Blocks

FS Short-haul AED Kit

Table J 5 Short-haul AED Kit

Qty	Unit	Category	Item
1	Each	AED Kit	Philips Heartstart Frx
1	Each	AED Kit	Philips Heartstart Frx Trainer

Appendix K. Glossary and Acronyms

ALSE:

Aviation Life Support Equipment

Anchor Point(s):

For short-haul operations, the anchor point will be a keeperless cargo hook and/or the Secondary Release System located underneath the helicopter.

This term is also used to identify a location inside the aircraft to affix a “Tether”.

A.N.S.I. (American National Standards Institute):

ANSI develops standards that are referred to by rule-setting organizations such as O.S.H.A.

Auto Locking (carabiner):

A carabiner that incorporates a locking feature on the gate of the carabiner to prevent an accidental opening.

Carabiner:

Is an (opening/closing) metal link made of various metal alloy(s) used to link one or more systems together. Carabiners are most commonly used for linking full-body or short-haul harnesses to haul- lines, knots, or other weld less or non-opening links. They come in various shapes and sizes depending on specific needs. All carabiners have a spring-loaded hinged gate that is self-closing.

Depending on the need or application, carabiners have various "locking" methods, i.e., "Twist", "Screw", or self “Auto-Closing/Auto-Locking" features built in.

Carabiners are made up of a "spine", "hinge", "notch", "latch", "pin", and a "gate"; (those with) locking features will be found on the "gate". Carabiners generally have two minimum rated breaking strengths; one along the "major" (longitudinal) axis (a.k.a. the "spine") and one along the "minor" (latitudinal) axis. The minimum (carabiner) rated breaking strength(s) referred to, in this package, will be of the "major" (long) axis.

Cargo hook:

A manufactured and installed external load carrying hook; located at the center of gravity on the belly of a helicopter, that can be released either electrically or manually by the pilot.

Center of Gravity “CG”:

An imaginary point where the resultant weight forces in the body may be considered to be concentrated for any position of the body. Consideration of center of gravity limitation is important in the loading of all aircraft, but it is particularly important and critical in helicopters.

CWN (Call When Needed; pilot(s) and/or aircraft):

A pilot and/or aircraft "carded" (approved) for USFS aviation operations.

DORA (The Daily Operational Risk Assessment):

To be used in short-haul, will be the GAR Model. The GAR will be implemented prior to every mission and readdressed as conditions warrant.

D-Ring:

A drop forged steel alloy (metal) "D" shaped ring. D-Rings approved for primary and/or secondary attachment points must meet ANSI, CE, Mil-Spec, NFPA, OSHA, or UIAA (or any combination thereof).

Dual Hook System:

A short-haul Dual Hook system is defined as the point of attachment of the short-haul line to the helicopter. This system will include both a primary and secondary attachment point, and the load must be fully jettisonable, utilizing two separate and independent actions. It is a redundant system designed to prevent a catastrophic loss of the entire short-haul load and, possibly, the HEC.

Evolution:

Any live helicopter vertical lift of a HEC or inert cargo and progression into forward flight.

Exclusive Use Contract:

An agreement used between an aircraft company and agency for the specific use of aircraft for agency purpose.

FAA (Federal Aviation Administration):

The Federal agency that administers all commercial aircraft operations.

FAR's (Federal Aviation Regulations):

Federal rules and regulations that govern commercial use aircraft.

General Assessment of Risk (GAR):

The GAR model allows for time critical risk assessment and generates communication concerning the mission risks.

Gate(s):

The opening portion of any carabiner. Some gates are designed to automatically lock once fully closed; others do not.

Ground Sequence:

Ground Sequence will consist of rigging, spotting, communications and demonstrated knowledge of standard procedures.

Hard Point(s):

An FAA approved location or device located either inside or outside of a helicopter and is secured sufficiently (to the aircraft) to tie-down or secure an item attached to the point.

Harness:

A full-body belt system made of flat nylon webbing. A harness contains leg, waist, chest, and shoulder straps designed to fit snugly on the outside (clothing) of short-haul personnel. Harnesses will contain one or more approved lifting (attachment) points either at the front of the hip/waist, chest, tops of both shoulder (straps), or middle of the upper back (depending on the needed application). An approved solid metal "D-Ring" will be sewn into each of the approved attachment points by the manufacture at time of the original manufacture.

Haul Bag:

Bag used for hauling equipment. Sometimes attached to harness or haul-line.

HEC:

Human External Cargo.

NSHO:

NWCG Standards for Helicopter Operations (PMS510)

ICAR:

International Commission of Alpine Rescue.

Inert cargo:

A load of equipment not including HEC. I.e., cylinder or bauman bag.

Kilonewton (kN):

An International Standard unit of force equal to 1000 newtons or 224.8 pounds. One newton is the force needed to accelerate one kilogram of mass at the rate of one meter per second squared.

Line:

Another term used for "rope", often used to refer to a synthetic rope, wire rope, or "haul-line".

Long or Major Axis:

A term used to describe the (carabiner) manufactures primary load-bearing design, along its "spine". Most carabiners have two minimum-rated breaking strengths; the higher rating is meant for forces that are pulled the long way along the spine. The low rating is meant for any kind of side loading the carabiner may be subjected to.

Minimum Breaking Strength:

The minimum amount of force required to break this object. Often referred to as tensile strength or breaking strength. Not to be confused with "Working Load Limit" or "Yield Strength."

O.S.H.A. (Occupational Safety and Health Administration):

A part of the Department of Labor tasked with enforcing safety in the workplace.

PIC:

Pilot In Command.

PPE:

Personal Protective Clothing, this can include: NOMEX, helmets, goggles, gloves, etc.

Spotter Anchor:

The Short-haul Spotter Anchor is a safety strap that attaches to the Spotter harness to an approved helicopter anchor point. The Spotter Anchor is to prevent the Spotter from falling out of the aircraft while in flight, in the event of an inadvertent seat belt failure. The tether may also allow the Spotter to move freely from one side of the rear compartment to the other side, at the direction of the pilot.

Splicing (or "Spliced Eyes"):

A term used to describe a process and/or procedure, where one (or both) end(s) of a Double-Braided Nylon, Polyester, or "Tenex" rope, is blended back into it to form a closed "eye" or "eyelet" loop(s). Spliced eyes will normally contain a stainless-steel thimble inside to reduce the wear or friction along the inside of the eye. Whenever possible, "spliced eyes" should be used instead of any type of knot(s), as knots can decrease the ropes strength by as much as 50%. Any rope splicing will be performed by an approved manufacture and/or (rope) distributing company certified to perform this procedure.

Swivel:

Helicopter accessory used with external jettisonable loads that hooks into either a cargo hook or "remote hook". The swivel allows the load to oscillate in flight without binding the hauling (rope and/or cable) lines.

Thimble:

A stainless steel or galvanized metal device designed to fit inside of a rope or wire cable(s) spliced eye. It provides wear protection for moving and/or shifting hardware manufactured and/or placed inside of the eye.

Tri-axial Loading:

A situation that occurs when a carabiner is pulled or "loaded" in three different directions at the same time. This shifts the load away from the spine, reducing the working load of carabiners, that are primarily designed for a straight pull or lifting situations.

UIAA (Union of International Alpine Association).

A European organization that certifies that equipment meets European mountaineering standards. The UIAA test fall is a laboratory simulation of the fall of a rock climber. The CE standard is replacing UIAA, and new ropes will be carrying the new label.

Working Load Limit:

The Working Load Limit is the maximum load which should ever be applied to the product, even when the product is new and when the load is uniformly applied – straight line pulls only.

Appendix L. Risk Assessment for Short-haul

Table 1 - Short-haul, Personnel System

Personnel System												
			Pre-mitigation				Mitigation	Post-mitigation			Mitigation Comments and References
Sub-System	ID	Hazards	Prob	Severity	Rating	ID		Prob	Severity	Rating	
Pilot	PR1	Inadequately trained and unqualified for the mission.	Moderate	High	Extreme	PR1M1	Interagency Heliocopter Pilot Practical Test Standards (IHPPTS) are officially established and referenced in the SSHO.	Very Low	High	High	IHPPTS, Short-haul Contract, SSHO Chapter 2
						PR1M2	Ensure the pilots meet and follow the standards.	Very Low	High	High	SSHO Chapter 2
						PR1M3	Ensure compliance with pilot proficiency test requirements.	Very Low	High	High	IHPPTS
						PR1M4	Develop and implement standardized training.	Very Low	High	High	SSHO Chapter 2 and Appendix B
						PR1M5	Vendor Implementing pilot-mentoring program during expansion of the program.	Very Low	High	High	Vender training program and encouraged to fly a minimum of 5 hours prior to PTS
	PR1.1	Not proficient in the short-haul mission.	Moderate	Moderate	High	PR1.1M1	Provide opportunity and funding for currency and identify proficiency protocols.	Very Low	Moderate	Moderate	SSHO Chapter 2 and funded appropriately
						PR1.1M2	Add currency proficiency requirements in the SSHO.	Very Low	Moderate	Moderate	SSHO Chapter 2
						PR1.1M3	Use contract specs to ensure the appropriate number of carded short-haul pilots.	Very Low	Moderate	Moderate	Short-haul Contracts
						PR1.1M4	Ensure the Short-haul spotter has the authority to stop the operation if the pilot is not properly carded or proficient.	Very Low	Very Low	Very Low	Annual CRM Training and SSHO Chapter 4
	PR1.2	Not fit or prepared for duty.	Moderate	Moderate	High	PR1.2M1	Ensure the Short-haul Spotter's authority to stop the operation if the person considers the pilot not fit or prepared for the mission, is understood and respected.	Very Low	Very Low	Very Low	Annual CRM Training and SSHO Chapter 4
						PR1.2M2	Short-haul Spotter / HMGB and pilot ensure adherence to pilot duty limitations.	Low	Moderate	Moderate	NSHO and Short-haul Contracts
						PR1.2M3	Use the initial pre-operational briefing to establish expectations and positive CRM by the Short-haul Spotter, Helicopter Manager and pilot.	Low	Moderate	Moderate	SSHO Chapters 2 and 4
	PR1.3	Overly aggressive tendencies and flying techniques by the pilot.	Moderate	High	Extreme	PR1.3M1	Use the initial pre-use briefing to establish expectations and positive CRM management by the Short-haul Spotter, HMGB and Pilot.	Low	High	High	SSHO Chapters 2 and 4
						PR1.3M2	Ensure the Short-haul Spotter's authority to stop the operation if the person considers the pilot not fit or prepared for the mission, is understood and respected.	Very Low	Very Low	Very Low	Annual CRM Training, SSHO Chapter 4
	PR1.4	Pilots not communicating safety concerns.	Low	Moderate	Moderate	PR1.4M1	Short-haul Spotters and crew establish open communication with the pilot to develop mission specific rapport and use CRM.	Very Low	Moderate	Moderate	SSHO Chapters 2 and 4
						PR1.4M2	Seek and encourage feedback during the GAR process, After Action Review (AAR) and debriefings.	Very Low	Moderate	Moderate	SSHO Chapters 4-6
Spotter and Short-haul personnel	PR2	Short-haul Spotters not qualified in the Short-haul mission.	Moderate	High	Extreme	PR2M1	Develop and implement a Short-haul Spotter Task Sheet.	Very Low	Moderate	Moderate	SSHO Chapter 6 and Appendix D
						PR2M2	Establish a Short-haul Working Group to recommend a standard process for Short-haul Spotter approval.	Very Low	Moderate	Moderate	SSHO Chapter 2 and Appendix H
						PR2M3	Adhere to the SSHO currency and performance standards for Short-haul Spotters.	Very Low	Moderate	Moderate	SSHO Chapter 2
	PR2.1	Short-hauler not qualified in the Short-haul mission.	Moderate	High	Extreme	PR2.1M1	Develop and implement a Short-hauler Training Task Sheet.	Low	Very Low	Very Low	SSHO Chapter 6 and Appendix D
						PR2.1M2	Adhere to the SSHO currency and performance standards for Short-haulers. Ensure proper team selection and qualifications appropriate for the mission.	Low	Very Low	Very Low	SSHO Chapter 2
	PR2.2	Short-hauler or Spotter not fit for duty.	Moderate	Moderate	High	PR2.2M1	Ensure the Short-haul Spotter and short-haul personnel follow CRM principles enabling all personnel to speak up.	Low	Moderate	Moderate	Annual CRM training, SSHO Chapters 4, and Appendix G
						PR2.2M2	Ensure initial operational briefing includes expectations for short-haul personnel, which includes performance standards.	Low	Moderate	Moderate	Daily briefings and SSHO Chapter 2
	PR2.3	Spotter or Short-hauler, dual qualified in Aerial Delivered Firefighter positions, confusing different delivery system procedures.	Moderate	Moderate	high	PR2.3M1	Completion of a ground moock-up to include emergency porocedures prior to transitioning from one ADFF system to another.	Low	Moderate	Moderate	Reference the FS Standards for Short-haul Operations and FS Standards for Rappel Operations Programmatic Risk Assessments.
Incident Commander Short-hauler	PR3	Short-hauler not qualified as incident commander for incident.	Moderate	Moderate	High	PR3M1	Ensure a minimum of one employee is qualified as an Incident Commander Type 5 (ICT5). The IC will be inserted onto the incdient on the first evolution.	Low	Low	Low	SSHO Chaprters 2 and 4, Red Card
EMT Short-Hauler	PR4	EMT Short-hauler incapable of providing adequate medical care.	Moderate	Moderate	High	PR4M1	Ensure the employee is qualified as an EMT Short-hauler.	Low	Low	Low	SSHO Chapter 2 and EMT/CE Trainings

Cooperating Agency Personnel	PR5	Lack of fundamental, foundational knowledge on the part of ground personnel for Short-haul operations	Low	Moderate	Moderate	PR5M1	Brief cooperators and educate agency personel on short-haul operations	Low	Moderate	Moderate	Short-haul Program Brochure, IAP insert, IRPG Extraction Pages, and 6 Minutes for Safety
						PR5M2	Ensure communcations are established with ground personnel prior to insertion.	Low	Low	Low	SSHO Chapters 4 and 5
	PR5.1	Cooperating agency personnel using different procedures, equipment and standards for Short-haul.	Moderate	Moderate	High	PR5.1M1	Ensure that differences between agency procedures are briefed and understood before flight.	Low	Moderate	Moderate	Cross training opportunites and promoting program plan unity where applicable
Human Factors	PR6	Fatigue impacting agency personnel and pilot capability to perform their duties at the necessary level.	Moderate	High	Extreme	PR6M1	Short-haul managers will evaluate the fatigue level of the pilot and the crew.	Low	Moderate	Moderate	SSHO Chapter 4 and Appendix G
						PR6M2	Ensure all short-haul personnel are trained in CRM, GAR, and address limits to the number of short-haul evolutions completed by each pilot within an operational shift.	Moderate	Moderate	High	SSHO Chapter 4 and Appendix G
						PR6M3	Monitor each crewmember during and after the mission for signs of stress.	Low	Low	Low	SSHO Chapter 4 and Appendix G
						PR6M4	Rotate people if performance degradation is evident.	Low	Low	Low	SSHO Chapter 4 and Appendix G
						PR6M5	Short-haul Managers will make CISM response and access to Employee Assistance Program to all personnel involved in a high stress or tramatic incidnet.	Low	Low	Low	FS 5700 EAP and CISM are available.
	PR6.1	Rapid transition between mission types interfering with situational awareness.	Moderate	Moderate	High	PR6.1M1	Ensure adequate briefings and that Short-haul Spotter is watching for procedural errors. Each short-haul mission will get a GAR Risk Assesment.	Low	Moderate	Moderate	SSHO Chapter 4 and Appendix G
						PR6.1M2	Strengthen and enforce training and briefings for the short-haul mission to maintain focus during transitions between helicopter missions.	Low	Moderate	Moderate	Annual CRM Training and SSHO Chapters 4 and 5
	PR6.2	Spotter tether not attached to anchor by spotter	Moderate	High	High	PR6.2M1	Pilot and Spotter will verify connection of tether and emphasize standard communication. Familiarity with equipment connection is needed.	Low	Moderate	Moderate	Annual CRM Training and SSHO Chapter 4 and Appendix B
	PR6.3	Lack of proficiency due to low frequency performance of mission	Moderate	Moderate	High	PR6.3M1	Ensure proper briefings and remind personnel to stay focused on the mission.	Low	Moderate	Moderate	SSHO Chapters 4, 5 and Appendix G
						PR6.3M2	Provide additional qualified management for focus and supervision.	Low	Low	Low	SSHO Chapters 4, Appendix G and F

Table 2 - Short-haul, Training System

Training System											
			Pre-mitigation				Mitigation	Post-mitigation			Mitigation Comments and References
Sub-System	ID	Hazards	Prob	Severity	Rating	ID		Prob	Severity	Rating	
Policy	TR1	Deviation from the intended mission of the Forest Service Short-haul Program	High	Low	moderate	TR1M1	Ensure clear direction in policy and guide.	Low	Low	Low	Annual review/edits of plans incorperating organizational learning
						TR1M2	Conduct quality assurance reviews to ensure direction is followed.	Low	Low	Low	SSHO Chapter 1 and Appendix F
	TR1.1	Policy and training requirements are inconsistent between agencies participating in Short-haul operations.	Moderate	Low	Low	TR1.1M1	Ensure procedures, process and equipment standards are in alignment with each agencies guidelines.	Low	Low	Low	SSHO Chapter 3 and Appendix B
						TR1.1M2	Conduct quality assurance reviews to ensure direction is followed.	Low	Low	Low	SSHO Appendix F
						TR1.1M3	Foster cooperation between agencies through interagency meetings, workshops, training and working groups.	Low	Low	Low	SSHO Appendix B, Combined Conference Calls, and Annual Fall Meeting
	TR1.2	Non standardized training procedures and equipment within the program.	Moderate	Moderate	High	TR1.2M1	Develop and implement training program.	Low	Low	Low	SSHO Appendix B and C
						TR1.2M2	Review training program through quality assurance process.	Low	Low	Low	SSHO Chapter 3, Appendix B, C, and F
						TR1.2M3	NAHOS will incorporate recommendations to improve a stardardized training program.	Low	Low	Low	SSHO Appendix B and C
Training Delivery	TR2	Lack of Short-haul Spotters/EMT Short-haulers/HIPS during new program establishment.	Moderate	Moderate	High	TR2M1	Establish training plan along with successional planning strategies	Low	Low	Low	SSHO Appendix B and C
						TR2M2	Collaborate with Interagency partners to develop short-haul personnel.	Low	Low	Low	SSHO Appendix B and C, Combined Conference Calls, Annual Fall Meeting
	TR2.1	Lack of standardized training curriculum.	Moderate	Moderate	High	TR2.1M1	Develop a standardized curriculum.	Very Low	Very Low	Very Low	SSHO Appendix B and C
						TR2.1M2	Effectively deliver training curriculum through standardized training.	Very Low	Very Low	Very Low	SSHO Appendix B and C
						TR2.1M3	Both medical and fire trainings are outlined in the syllabus.	Very Low	Very Low	Very Low	SSHO Appendix B and C

Table 3 - Short-haul, Operations System

Operations System

			Pre-mitigation					Post-mitigation			
Sub-System	ID	Hazards	Prob	Severity	Rating	ID	Mitigation	Prob	Severity	Rating	Mitigation Comments and References
Site Selection	OP1	Selection of an inadequate short-haul insertion site could result in an unsafe environment for short-haul personnel also increasing the exposure to rotor strikes, entanglements, and lack of Escape Routes and Safety Zones.	Moderate	High	Extreme	OP1M1	Rely on the Pilot in Command and Spotter for approval of all insertion and extraction sites.	Low	High	High	Annual CRM Training and SSHO Chapter 4
						OP1M2	Pilot should ensure site selections meet NWCG Standards for Helicopter Operationas (NSHO) standards during below canopy operations.	Low	High	High	SSHO Chapter 4
						OP1M3	Use a reconnaissance flight with the pilot and Short-haul Spotter to evaluate the proposed operation.	Low	High	High	SSHO Chapter 4
						OP1M4	The insertion at the site shall confirm and communicate any additional hazards and the suitability of the location.	Low	Moderate	Moderate	SSHO Chapter 4
						OP1M5	Evaluation of fire behavior and LCES is required during the reconnaissance phase of the operation. Communication of site and hazards can be discussed during insertion to the fire. Cancel insertion if situation dictates.	Low	High	High	SSHO Chapter 4
Standardization of procedures	OP2	Pilot confusion from non-standardized verbal, and non-verbal communcations.	Moderate	Moderate	High	OP2M1	Implement standardized verbal, and non-verbal communcations with pilot and short-haul personnel.	Low	Moderate	Moderate	SSHO Chapters 2 and 4
Management	OP3	Uncontrolled personnel at configuration site or patient transfer site.	High	High	Extreme	OP3M1	Conduct reconnaissance flight and provide for scene safety	Low	Moderate	Moderate	SSHO Chapters 2 and 4
						OP3M2	Coordinate with ground personnel, ATGS, and other functions involved in emergency extracation.	Low	Moderate	Moderate	SSHO Chapter 4
	OP3.1	Lack of adequate helicopter crewmembers/Short-haulers/EMT's/IC's for the overall mission.	Moderate	Low	Low	OP3.1M1	Ensure, develop and identify a pool of qualified personnel prior to mission.	Low	Low	Low	SSHO Chapters 2 and 4
	OP3.2	Lack of program oversight to ensure standardization and quality assurance.	High	High	Extreme	OP3.2M1	Have in place standard unit organizational chart including; Aviation Officer, full compliment of helicopter management in place.	Low	Low	Low	SSHO Chapter 1, 2, and Appedix F
						OP3.2M2	Establish Forest Service National Asst. Helicopter Operations Specialist (NAHOS) position for oversight and quality assurance.	Low	Low	Low	Position filled in 2020
Briefings (Pre-operations and Post-operations)	OP4	Not all short-haul personnel have received a briefing resulting in confusion prior or during mission.	Low	Moderate	Moderate	OP4M1	Ensure all participants are briefed prior to the mission.	Very Low	Moderate	Moderate	SSHO Chapter 4 and Appendix G
	OP5	Post-flight debriefings are not consistently performed resulting in loss of mission information and lessons learned.	Moderate	Low	Low	OP5M1	Short-haul base managers will ensure all personnel are aware of the requirement and experienced in the completion of After Action Reviews (AARs) for each mission. Lessons learned from these AAR's will be shared with the respective Regional Check Spotter who will communicate them to the NAHOS.	Low	Low	Low	SSHO Chapter 6, Appendix B, and D.
						OP5M2	Ensure mission documentation is completed and reported to the appropriate regional and the NAHOS.	Low	Low	Low	SSHO Chapter 6 and Appendix D
Medical Plan	OP6	Insufficient or unfamiliar medical plan for incident or local unit.	Moderate	Moderate	High	OP6M1	Ensure a medical plan with all pertinent information is in place and brief accordingly.	Low	Moderate	Moderate	SSHO Chapter 4 and Review IAP, ICS-206
						OP6M2	Prior to mission planning coordinate with IMT's, Dispatch centers, Local units as appropriate.	Low	Moderate	Moderate	SSHO Chapter 4 and Review IAP, ICS-206
	OP6.1	Outside ground or air resource medical assistance is not available in some short-haul operations areas.	Moderate	High	Extreme	OP6.1M1	Ensure Medical Plan identifies sources of medical transport assets.	Moderate	Moderate	Moderate	SSHO Chapter 4 and Review IAP, ICS-206
						OP6.1M2	Ensure Medical Plan provides for air evacuation and ground evacuation contingencies.	Low	Moderate	Moderate	Review IAP, ICS-206
	OP6.2	Short-haul personnel lack adequate medical training for field emergencies.	High	High	Extreme	OP6.2M1	Require Short-haul modules to have EMT Short-haulers. (A mininum of 1 EMT per operational shift)	Low	Moderate	Moderate	SSHO Chapter 1 and 2
						OP6.2M2	Ensure an EMT is a component of every short-haul mission.	Low	Moderate	Moderate	SSHO Chapters 2 and 4
	OP6.3	Local unit, IMT's, Dispatch, unfamiliar with program capabilities and limitations.	Moderate	Moderate	High	OP6.3M1	Communicate preseason and prior to conducting missions on capabilities and limitations.	Low	Moderate	Moderate	WFSTAR videos, Short-haul Brochure, IAP insert, IRPG Extraction Pages
						OP6.3M2	Develop a short-haul resource users guide describing capabilities and limitations. (Helicopter/module Information Sheet)	Low	Moderate	Moderate	WFSTAR videos, Short-haul Brochure, IAP insert, IRPG Extraction Pages
	OP7	Non-standardized operational procedures.	High	High	Extreme	OP7M1	Follow standardized operational procedures identified in SSHO.	Low	Moderate	Moderate	SSHO Chapter 4 and Appendix F
						OP7M2	Ensure Quality Assurance Teams review programs.	Low	Moderate	Moderate	SSHO Appendix F
	OP7.1	Requesting a short-haul mission that exceeds the capabilities of the resource and personnel.	High	High	Extreme	OP7.1M1	Work within the scope of the SSHO and mission parameters.	Very Low	Very Low	Very Low	SSHO Chapter 4 and Appedix F

Short-haul Procedures	OP7.2	Improper rigging of Short-hauler/litter to short-haul system.	High	High	Extreme	OP7.2M1	Perform an equipment/spotter check before each flight. Follow SSHO procedures.	Very Low	Moderate	Moderate	SSHO Chapters 3 and 4
	OP7.3	Improper rigging of Short-haul system to aircraft.	High	High	Extreme	OP7.3M1	Consider shutting aircraft down at configuration site. Spotter and pilot check prior to starting mission.	Very Low	Moderate	Moderate	SSHO Chapter 4 and Appendix I
	OP7.4	Human external cargo inadvertent contact with terrain or other objects	High	Extreme	Extreme	OP7.4M1	Ensure Short-haul Spotter in aircraft. In the event there is HEC collision with terrain or other objects take appropriate action to limit further adverse contact. Address issue in AAR and consider if safecom is necessary.	Low	High	High	SSHO Chapter 4
						OP7.4M2	Positive communcations, verbal and non-verbal, between all crewmembers.	Low	High	High	SSHO Chapter 4 and Appendix B
Emergency Procedures	OP8	Lack of a crash rescue kit on an operation.	Extreme	Low	Moderate	OP8M1	Ensure crash rescue kits are available as needed on site during short-haul operations.	Very Low	Very Low	Very Low	NSHO
	OP8.1	Lack of emergency procedures training prior to actual missions	Low	Extreme	Extreme	OP8.1M1	Standardized EP's are in place. Short-haul Spotters, Short-haulers and pilots will review EP's periodically to prepare in the event of an emeregency.	Very Low	High	High	IHPPTS, SSHO Chapter 5 and Appendix F
	OP8.2	Inflight aircraft emergency of an immediate nature.	Very Low	Extreme	Extreme	OP8.2M1	Implement emergency procedures identified in the SSHO.	Very Low	High	High	SSHO Chapters 2 and 5
	OP8.3	Inadvertant human cargo release.	Very Low	Extreme	Extreme	OP8.3M1	Inspection of primary and secondary releases will occur prior to mission.	Low	Moderate	Moderate	SSHO Chapter 4, Appendix B, and I
	OP8.4	Intentional human cargo release	Very Low	Extreme	Extreme	OP8.4M1	Short-haul Spotters, Short-haulers and pilot will brief on expectations and alternatives to increase survivability in the event of helicopter loss of control or power failure.	Very Low	High	High	SSHO Chapters 4, 5 , and Appendix B
						OP8.4M2	Develop standardized procedures for intentional release.	Low	High	High	SSHO Chapters 3 and 5
Human Factors	OP9	Pilot loss of vertical reference.	Low	High	High	OP9M1	Pilot and crew will assess the insert/extract site to assure the capability to maintain adequate references via recon.	Very Low	Low	Very Low	SSHO Chapter 4
						OP9M2	Short-haul Spotter on board to assist pilot with vertical reference, identifying hazards, and communications.	Very Low	Low	Very Low	Annual CRM Training, SSHO Chapter 4 and Appendix B
	OP9.1	Unclear/misunderstood communications.	Low	Moderate	Moderate	OP9.1M1	Utilize clear text and standardized challenge and response communications when applicable.	Low	Moderate	Moderate	Annual CRM Training, SSHO Appendix B and G
	OP9.2	Exposure to traumatic events involving loss of human life or severe injury.	Moderate	High	Extreme	OP9.2M1	Preseason preparation using resources such as "Stress Control and Resilience Guide".	Low	Moderate	Moderate	Annual CRM Training, SSHO Appendix B, CISM Guide
			Moderate	High	Extreme	OP9.2M2	Implement Critical Incident Stress Management post incident as needed.	Low	Moderate	Moderate	Annual CRM Training, SSHO Appendix B, CISM Guide
	OP9.3	Overwhelming sense of urgency in life threating situation	Moderate	High	Extreme	OP9.3M1	During configuration phase, consider shutting down aircraft.	Moderate	Moderate	High	SSHO Chapter 4 and Appendix B
Environmental Hazards	OP10	Falling debris.	Moderate	High	Extreme	OP10M1	Utilize appropriate head protection when working under or in the vicinity of a hovering helicopter.	Moderate	Moderate	High	SSHO Chapter 3
						OP10M2	Include hazard awareness in short-haul training and refresher courses as well as daily operation plans and briefings.	Low	Moderate	Moderate	SSHO Chapter 4 and Appendix B
						OP10M3	Ensure clearance and rotor height is adequate at site and check surrounding area for hazard trees. If nessessary relocate short-hauler/patient to more suitable site.	Low	High	High	SSHO Chapter 4 and Appendix B
	OP10.1	Fire Behavior	Moderate	High	Extreme	OP10.1M1	Ensure LCES is in place. If nessessary relocate short-haulers/patient to more suitable site.	Low	High	High	Annual Fire Refresher, SSHO Chapter 4 and Appendix B
						OP10.1M2	Ensure helicopter does not impact fire behavior by maintaining sufficient height above ground. Consider alternate line length.	Low	Moderate	Moderate	SSHO Chapters 3, 4, and Appendix B
	OP10.2	Terrain and Vegetation	Moderate	Moderate	High	OP10.2M1	Site selection should be in a location acceptable for short-haulers to land (not too steep).	Low	Moderate	Moderate	SSHO Chapters 4 and Appendix B
	OP10.3	Low visibility due to smoke, dust, darkness, etc	Moderate	High	Extreme	OP10.3M1	Follow NSHO standards. Establish trigger points to cease operations.	Low	Moderate	Moderate	SSHO Chapters 4 and 5
						OP10.3M2	Select site so that the spotter can maintain positive visual contact with Short-haulers to the ground, to insert and extract.	Low	Moderate	Moderate	SSHO Chapter 4
	OP 10.4	Hazardous Materials	Moderate	Moderate	Moderate	OP10.4 M1	Ensure hazmat is manifested and locations known	Low	Low	Low	SSHO Chapter 3
Use of the Safecom System for Reporting	OP11	Lack of training short-haul mishaps being reported.	Moderate	Moderate	High	OP11M1	All short-haul mishaps will be reported through the SAFECOM reporting system.	Low	Moderate	Moderate	SSHO Chapter 3, 5, and Appendix B

Table 4 - Short-haul, Equipment System

Equipment System

			Pre-mitigation				Mitigation	Post-mitigation			Mitigation Comments and References
Sub-System	ID	Hazards	Prob	Severity	Rating	ID		Prob	Severity	Rating	
Short-haul Equipment	EQ1	Non-standard and non-agency approved equipment resulting in unfamiliarity in utilization of equipment.	High	High	Extreme	EQ1M1	Forest Service Short-haul Program will ensure quality assurance and oversight.	Very Low	Moderate	Moderate	SSHO Chapter 3 and Appendix A, B, D, and F
						EQ1M2	Use only equipment identified and approved in the SSHO and NSHO.	Very Low	Moderate	Moderate	NSHO, SSHO Chapter 3 Appendix A, B, D, and F
						EQ1M3	Involve NTDP to evaluate and validate equipment use.	Low	Moderate	Moderate	Continually evaluating
	EQ1.1	Short-haul equipment damaged/expired.	Low	Extreme	Extreme	EQ1.1M1	Develop and implement inspection criteria as well as documentation in SSHO. Retire equipment as outlined in the SSHO and manufacturer requirements	Low	Low	Low	SSHO Chapter 3, 6, and Appendix D
	EQ1.2	Short-haul equipment not adequately inspected.	High	Moderate	High	EQ1.2M1	Identify Short-haul module personnel in the SSHO who are qualified to inspect equipment.	Low	Low	Low	SSHO Chapter 6
	EQ1.3	Harness and teather do not allow for emergency egress from A/C	Moderate	High	High	EQ1.3M1	Identify pilot/spotter equipment and associated training that promotes ease of release and egress without the use of a cut away knife to comply with FAA policies.	Very Low	Moderate	Moderate	SSHO Chapter 3, 4, and Appendix B
	EQ1.4	Short-haul equipment improperly rigged on the aircraft.	Low	Extreme	Extreme	EQ1.4M1	Pilot and Short-haul Spotter will perform the initial rigging of the aircraft for short-haul operations.	Very Low	Low	Very low	SSHO Chapter 4 and Appendix B
						EQ1.4M2	Develop and implement cargo and secondary hook check procedures to be used at onset of operation.	Very Low	Low	Very Low	SSHO Chapter 4 and Appendix I
	EQ1.5	Pilot using a length of line in which they are not proficient.	Moderate	High	Extreme	EQ1.5M1	Ensure pilot carding is completed and proficiency currrent prior to mission execution.	Low	Moderate	Moderate	IHPPTS, SSHO Chapters 2 and 4
Short-hauler Equipment	EQ2	Short-hauler/EMT Short-hauler without Personal Protective Equipment (PPE) or supplies at landing site.	Moderate	Moderate	High	EQ2M1	Ensure standardized haul bag with personnel protective equipment.	Very Low	Low	Very Low	SSHO Chapter 3 and Appendix B
						EQ2M2	Identify minimum equipment/supply list with weight limitations identified in the SSHO.	Very Low	Low	Very Low	SSHO Chapter 3
	EQ2.1	Short-hauler/IC without PPEor supplies for fire suppression/support	Moderate	Moderate	High	EQ2.1M1	Ensure a Essential Equipment List (EEL) for firefighting actions and supporting personnel for multiple shifts.	Very Low	Low	Very Low	SSHO Chapter 3
Cargo Letdown	EQ3	Multiple landings delaying patient care that results in not having medical supplies.	Moderate	Moderate	High	EQ3M1	Evaluate need to include cargo letdown operations into the Short-haul Program.	Low	Low	Low	Continually evaluating

Table 5 - Short-haul, Medical Treatment System

Medical Treatment System

			Pre-mitigation				Mitigation	Post-mitigation			Mitigation Comments and References
Sub-System	ID	Hazards	Prob	Severity	Rating	ID		Prob	Severity	Rating	
Medical Equipment	MT1	EMT unfamiliar with medical equipment	Moderate	High	Extreme	MT1M1	Standardized equipment for level of certified care needs.	Very Low	Very Low	Very low	SSHO Appendix J, EMT/CE Training
						MT1M2	EMT will be trained on use and care of equipment as well as participate in scenarios.	Very Low	Very Low	Very low	SSHO Appendix J, EMT/CE Training
Emergency Medical Technician	MT2	Rendering services beyond scope of practice	Moderate	High	Extreme	MT2M1	EMT's knowledgeable of scope of practice limitations and able to provide care only within scope.	Very Low	Low	Very low	On-going work with Medical Directors
						MT2M2	Ensure certification is current and all training has been conducted.	Very Low	Low	Very Low	On-going work with Medical Directors
	MT2.1	Utilizing an inappropriate Short-haul Extraction packaging system.	Moderate	High	Extreme	MT2.1M1	Accurate patient assessment by EMT.	Very Low	Low	Very low	On-going work with Medical Directors
						MT2.1M2	Correct selection of transport method. (Litter or Seated)	Very Low	Low	Very low	SSHO Chapter 3 and Appendix B
Patient	MT3	Patient injury or illness is beyond Basic Life Support.	High	High	Extreme	MT3M1	Preplanning at the unit or incident level will enable prompt response for packaging and transport of patient to Advanced Life Support.	Moderate	High	High	Review and brief on IAP, ICS-206
						MT3M2	Communicate additional needs to Dispatch, ICP, ATGS.	Moderate	High	High	SSHO Chapter 4 and Appendix B
	MT4	Delay of patient transport due to packaging and/or repackaging.	Moderate	High	Extreme	MT4M1	Standardized equipment across the Fire and Aviation Short-haul community.	Low	Moderate	Moderate	SSHO Chapter 3 and Appendix J
						MT4M2	Develop short-haul medical equipment that will accept a variety of patient packaging systems.	Low	Moderate	Moderate	SSHO Chapter 3 Appendix J

Table 6 - Short-haul, Aircraft System

Aircraft System											
			Pre-mitigation					Post-mitigation			Mitigation Comments and References
Sub-System	ID	Hazards	Prob	Severity	Rating	ID	Mitigation	Prob	Severity	Rating	
Performance and Capabilities	AC1	Helicopter door damage at staging area or during mission flight.	Moderate	Moderate	High	AC1M1	Assess and evaluate pros and cons of hinged doors versus sliding doors.	Low	Moderate	Moderate	Continually evaluating
	AC1.1	Exceeding the performance capability of the Type 3 helicopters.	Moderate	Extreme	Extreme	AC1.1M1	Operate per NSHO, Rotorcraft Flight Manual (RFM) and the Short-haul Plan.	Low	Moderate	Moderate	NSHO, RFM, SSHO Chapter 3, 4, 5, and Appendix B
						AC1.1M2	Ensure make and model meet contract specifications.	Very Low	Low	Very Low	Reflected in contract exhibits and during SSB panel
	AC1.2	Environmental conditions such as terrain, density altitude, elevation, winds and temperature impacting helicopter performance.	High	Extreme	Extreme	AC1.2M1	Ensure environmental conditions within the load calc reflect actual mission conditions.	Low	Low	Low	Load Calculations, NSHO, SSHO Chapter 4 and Appendix B
	AC1.3	Aircraft not properly equipped for human loads.	Moderate	Moderate	High	AC1.3M1	During carding process, ensure all cargo hook systems are approved by the agency for human loads.	Very Low	Moderate	Moderate	Confirmed by AMI at time of carding. SSHO Appendix F
						AC1.3M2	Ensure Short-haul Spotter verifies cargo hook system is approved by the agency for human loads.	Very Low	Moderate	Moderate	SSHO Chapter 3, and 4
	AC1.4	There is an inherent hazard posed by helicopters operating within the height velocity curve in the case of an engine failure.	Low	Extreme	Extreme	AC1.4M1	Consider a twin-engine aircraft with single engine fly-away capability.	Low	Low	Low	A/C selected for short-haul will meet contract performance capability
Communications	AC2	Short-haul Spotter not having intercom communication with pilot/Short-hauler.	Low	Moderate	Moderate	AC2M1	Prior to mission, ensure communication between pilot, Short-haul Spotter/Short-hauler. If verbal comms are lost, hand signals can be used to communicate and complete mission or mission can be terminated.	Very Low	Moderate	Moderate	SSHO Chapter 4 and Appendix B
Doors off operation	AC3	There is a likely hazard posed by flight missions when doors are open or removed.	Low	High	High	AC3M1	Ensure cabin objects/items are secured before flight commences.	Low	Moderate	Moderate	SSHO Chapter 4, and Appendix B
						AC3M2	In addition to required seat belt use during takeoffs/landings, spotters will utilize a short-haul harness with tether and/or carabiner attached to appropriate A/C hard points as a secondary restraint which maintains the ability for quick release.	Low	Moderate	Moderate	SSHO Chapter 3, 4, and Appendix B
Pilot Seating Position	AC4	Pilot ergonomics and diminished vertical reference.	Moderate	Moderate	High	AC4M1	Evaluate left side versus right side drive.	Low	Moderate	Moderate	Continually evaluating
						AC4M2	Helicopter Screening and Evaluation Board evaluates all makes and models suitable for future mission needs.	Low	Moderate	Moderate	Continually evaluating
Secondary Restraint System	AC5	Pilot removes hand from flight control in order to release the secondary release system.	High	Extreme	Extreme	AC5M1	Research, evaluate and test fixed secondary restraint system that is operated from the pilots flight controls or accessible to spotter.	Low	Low	Low	Boost System, SSHO Chapter 4,5, and Appendix I
PA Communication System	AC6	No viable communication with ground personnel at or near the extraction site or configuration site.	Low	Moderate	Moderate	AC6M1	PA system may be required within the contract solicitation by each hosting unit.	Very Low	Low	Very Low	Continually evaluating

National Short-haul Quality Assurance Residual Risk Rationale

Personnel System

Sub System	**Pilot**
Hazard	(PR1) Pilot inadequately trained and unqualified for the mission.
Mitigation	(PR1M1 thru PR1M4) Practical Test Standard (PTS) are officially established and referenced in the SSHO, Ensure the pilots meet and follow the standards, develop, and implement standardized training, and Develop and implement standardized training.
Residual Rating	High
Rationale	While the mitigations listed above limit the probability of encountering the associated hazard to very low, the outcome of having a pilot with less-than-optimal training or current qualification may result in high consequence.
Sub System	**Pilot**
Hazard	(PR4) Overly aggressive tendencies and flying techniques by the pilot
Mitigation	(PR4M1) Utilize the initial pre-use briefing to establish expectations and positive helicopter management by the Short-haul Spotter, HMGB and Pilot.
Residual Rating	High
Rationale	With the use of CRM training, GAR risk assessments, pre-op briefings, and daily communication among team members may identify and mitigate potential aggressive flying behavior; however, no one can adequately anticipate personnel response to situations with peak emotional and physical stressors that may arise due to medical emergencies. All pilots will be required to successfully complete the Short-haul Practical Test Standards, which should help identify pilots with aggressive tendencies.

Sub System	Human Factors
Hazard	(PR12) Fatigue impacting personnel capability to perform their duties at the necessary level.
Mitigation	(PR12M2) Improve education and information sharing for all personnel on heat, hydration, rest, and other physiological conditions issues. Complete daily internal crew checks.
Residual Rating	High
Rationale	The absence of some level of mental or physical fatigue is rare in the wildland fire or rescue environment. Short-haul mission personnel shall be trained in team selection, identification of fatigue symptoms, and fatigue management methods to limit the occurrence of unrested personnel; however, the elimination of all fatigue which may be a contributing factor to a high consequence is improbable. Crew Resource Management Training should lead to team members communicating and mitigating fatigue issues in a timely manner.

Training System

Sub System	Training Delivery
Hazard	(TR6) Lack of emergency procedures training prior to actual missions (This hazard is no longer found in the programmatic risk assessment spreadsheet due to the high number of collateral mitigations found in the assessment to defend against it being encountered.)
Mitigation	(TR6M1) Short-haul Spotters, EMT Short-haulers and pilot preseason and prior to missions discuss expectations & complete simulation training for any unplanned event.
Residual Rating	High
Rationale	Personnel will be trained to implement emergency procedures for known conditions and sequences of events to reduce the probability and limit the severity of adverse outcomes. Standardized training in an academy setting should alleviate inconsistencies that could lead to errors in emergency procedures. Despite a very low residual probability rating, the potential severity of any emergency remains high.

Operations System

Sub System	**Site Selection**
Hazard	(OP1) Selection of an inadequate Short-haul insertion site could result in an unsafe environment for Short-haul personnel also increasing the exposure to rotor strikes, and entanglements.
Mitigation	(OP1M2) Pilot should ensure site selections meet NWCG Standards for Helicopter Operations (NSHO) standards during below canopy operations.
Residual Rating	High
Rationale	Maintaining rotor clearance and preventing rope entanglements will be a collaborative task for the pilot, spotter, and short-hauler. Site selection is addressed during the Practical Test Standards for pilots as well as in the Short-haul Academy consolidated training for spotters. Despite a low probability of a rotor strike or rope entanglement with mitigations, the severity of any incident below a canopy top environment would still be high.
Sub System	**Short-haul Procedures**
Hazard	(OP15) Human external cargo collision with terrain or objects
Mitigation	(OP15M1) Ensure Short-haul spotters in aircraft
Residual Rating	High
Rationale	Adequately trained and experienced pilots have unintentionally impacted the ground or other obstacles while performing other external load missions. It can be expected that short-haul pilots that have received additional specialized training will be subject to this occurring with human loads much less frequently. Communication between the pilot, spotter and short-hauler is covered in detail during the Practical Test Standards as well as in the Short-haul Consolidated Training. As remote as this occurrence may be after this training and other mitigations are in place, the high consequence rating cannot be reduced further.

Sub Systems	**Emergency Procedures**
Hazard	(OP17) Lack of Emergency Procedures training prior to actual missions
Mitigation	(OP17M1) Develop emergency procedures and implement training
Residual Rating	High
Rationale	Personnel will be trained to implement emergency procedures for known conditions and sequences of events to reduce the probability of an inappropriate response on the part of the crew in an emergency setting. Standardized training in an academy setting should alleviate inconsistencies that could lead to errors in emergency procedures. Because of the numerous combinations of operational and environmental uncertainties an emergency that can occur, preparation will never eliminate a potential high severity outcome for some unforeseen factor.
Sub Systems	**Emergency Procedures**
Hazard	(OP18) Inflight aircraft emergency of an immediate nature.
Mitigation	(OP18M1) Implement emergency procedures identified in the SSHO
Residual Rating	High
Rationale	While this hazard probability is low with successful mitigations in place, in flight emergencies such as engine, hydraulic, or other mechanical failure resulting in limited or lack of control of aircraft can still occur. Emergency Procedures have been developed and implemented for the short-haul program; these procedures are addressed in the Practical Test Standards and at the Short-haul Consolidated Training. These measures should lessen the severity should such an event occur. Due to the environment in which these events could occur, there still may be a high severity outcome. The extent of loss or injury is dependent upon the stage of short-haul mission.

Sub System	**Emergency Procedures**
Hazard	(OP20) Intentional human cargo release
Mitigation	(OP20M1) Short-haul Spotters, Short-haulers and pilot preseason and prior to missions discuss expectations and alternatives to increase the survivability in the event of a helicopter loss of control or power failure.
Residual Rating	High
Rationale	Any intentional human cargo release will be intended to improve survivability of those onboard and external to the aircraft. Emergency Procedures address situations which may require an intentional release of the external human cargo and are addressed in the Practical Test Standards and at the Short-haul Academy Consolidated Training. These measures may lessen the severity should such an event occur. Despite the low probability of intentionally releasing human cargo to improve survivability for all parties, there is still the potential that this action will result in high severity consequence for crewmembers and or aircraft. The extent of loss or injury is dependent upon the stage of short-haul mission.
Sub System	**Human Factors**
Hazard	(OP24) Overwhelming sense of urgency in life threating situation
Mitigation	(OP24M1) During configuration phase, consider shutting down aircraft.
Residual Rating	High
Rationale	While shutting down the aircraft will have an immediate effect on reducing operational tempo, this may not positively affect the sense of urgency felt by each individual team member.

Sub System	**Environmental Hazards**
Hazard	(OP25) Falling Debris
Mitigation	(OP25M1) Utilize appropriate head protection when working under or in the vicinity of a hovering helicopter.
Residual Risk	High
Rationale	There will be some moderate level of probability of falling objects or debris striking a person operating below hovering aircraft in a tree canopy environment. No mitigating factor can eliminate a moderate to high consequence rating associated with a strike to the head of short-hauler or other personnel.
Sub System	**Environmental Hazards**
Hazard	(OP26) Fire Behavior
Mitigation	(OP26M1) Ensure LCES is in place. If necessary, relocate patient to more suitable site.
Residual Risk	High
Rationale	The wildland fire environment is inherently high-risk dynamic environment. Even with mitigations in place there is a low probability of being affected by fire activity by expected events such as weather. With some degree of uncertainty of environmental factors, there will always be potential of a high severity outcome with unexpected fire behavior requiring a relocation of a patient to more safe location to complete a medical extraction.

Medical Treatment

Sub System	**Patient**
Hazard	(MTS4) Patient injury or illness is beyond Basic Life Support
Mitigation	(MTS4S1) Rapid transport to Advanced Life Support
Residual Risk	High
Rationale	Even with mitigations in place, due to the availability of Short-haul resources and the remoteness of the wildland fire environment, there will be a moderate level of risk to the patient being able to receive timely transport to definitive medical treatment due to environmental and operational variables.
Sub System	**Patient**
Hazard	(MTS4) Patient injury or illness is beyond Basic Life Support
Mitigation	(MTS4S2) Communicate additional needs to Dispatch, ICP, ATGS, etc.
Residual Risk	High
Rationale	Even with mitigations in place, due to the availability of Short-haul resources and the remoteness of the wildland fire environment, there will be a moderate level of risk to the patient being able to receive timely transport to definitive medical treatment. Develop contingencies to bolster resources on scene to establish care until transportation logistics can be established.

Regional Short-haul Program Risk Assessment

REGION: _____

DATE: _____

Management needs to review the checklist items specified against Appendix M, the Programmatic Risk Assessment for Short-haul.

The purpose of the checklist is to ensure the regions have fully reviewed the Assessment and either concurs or disagrees with the mitigations and have the implemented the mitigations or have additions or alternatives to share with the national office.

The response assures the national office that the regional personnel are reviewing the hazards/risks/mitigations and are signing off on the awareness of the "high" risk(s) that are represented even with mitigations accomplished.

Management is encouraged to add any hazards along with mitigations if they feel there are any that were not identified in the analysis.

Short-haul Personnel System

PR2 Not proficient in the Short-haul mission.

□ PR2M3. Use Contract specifications to limit the number of carded Short-haul pilots.

□ PR2M4. Ensure the Short-haul Spotter has the authority to stop the operation if, the person considers the pilot not proficient for the mission.

PR3 Not fit or prepared for duty.

□ PR3M1. Ensure the Short-haul Spotter's authority to stop the operation if the person considers the pilot not fit or prepared for the mission, is understood and respected.

□ PR3M2. Short-haul Spotter / HMGB ensures pilot adheres to pilot duty limitations.

□ PR3M3. Utilize the initial pre-use briefing to establish expectations and positive helicopter management by the Short-haul Spotter, Helicopter Manager, and pilot.

PR4 Overly aggressive tendencies and flying techniques by the pilot.

□ PR4M1. Utilize the initial pre-use briefing to establish expectations and positive helicopter management by the Short-haul Spotter, HMGB and Pilot.

□ PR4M1. Ensure the Short-haul Spotter's authority to stop the operation if the person considers the pilot not fit or prepared for the mission, is understood and respected.

PR5 Pilots not communicating safety concerns.

□ PR5M1. Short-haul Spotters and HMGB establish open communication with the pilot to develop mission specific rapport and use CRM.

□ PR5M2. Seek and encourage feedback during the GAR process, After Action Review (AAR) and debriefings.

PR6 Short-haul Spotters not qualified in the Short-haul mission.

□ PR6M3. Adhere to the SSHO currency and performance standards for Short-haul Spotters.

PR7 Short-hauler not qualified in the Short-haul mission.

□ PR7M2. Adhere to the SSHO currency and performance standards for Short-haul Spotters.

PR8 Short-hauler/attendant or Spotter not fit for duty.

□ PR8M1. Ensure the Short-haul Spotter and Short-haul personnel follow CRM principles. Enabling all personnel to speak up

□ PR8M2. Ensure initial operational briefing includes expectations for Short-haul personnel, which includes performance standards.

PR9 EMT Short-hauler incapable of providing adequate medical care

□ PR9M1. Ensure the employee is qualified as an EMT Short-hauler.

PR10 Lack of fundamental, foundational knowledge on the part of ground personnel for Short-haul operations

□ PR10M2. Ensure communications are established with ground personnel prior to insertion.

PR12 Fatigue impacting personnel capability to perform their duties at the necessary level.

□ PR12M1. Short-haul Managers will evaluate the fatigue level of the pilot and the crew.

□ PR12M2. Improve education of all personnel on heat, hydration, rest, and other physiological conditions issues.

□ PR12M3. Monitoring by designated safety personnel.

□ PR12M4. Rotate people if performance degradation is evident.

PR13 Rapid transition between mission types interfering with situational awareness.

□ PR13M1. Ensure adequate briefings and that Short-haul Spotter is watching for procedural errors. Each short-haul mission must get a GAR Risk Assessment

□ PR13M2. Strengthen and enforce training and briefings for the Short-haul mission to maintain focus during transitions between helicopter missions.

PR14 Lack of proficiency due to low frequency performance of mission

- □ PR14M1. Ensure proper briefings and remind personnel to stay focused on the mission.
- □ PR14M2. Provide additional qualified management for focus and supervision.

Short-haul Training System

TR2 Policy and training requirements are inconsistent between agencies participating in Short-haul operations.

- □ TR2M1. Ensure procedures, process and equipment standards are in alignment with each agency's guidelines.

Short-haul Operations System

OP1 Selection of an inadequate Short-haul insertion site could result in an unsafe environment for Short-haul personnel also increasing the exposure to rotor strikes, and entanglements.

- □ OP1M1. Rely on the Pilot in Command and Spotter for approval of all insertion and extraction sites.
- □ OP1M2. Pilot will ensure site selections meet NWCG Standards for Helicopter Operations (NSHO) standards during below canopy operations.
- □ OP1M3. Use a reconnaissance flight with the pilot and Short-haul Spotter to evaluate the proposed operation.
- □ OP1M4. The first insertion at the site shall confirm and communicate any additional hazards and the suitability of the site.

OP2 Pilot confusion from non-standardized verbal and non-verbal communications.

- □ OP2M1. Implement standardized verbal and non-verbal communications with pilot and Short-haul personnel.

OP3 Uncontrolled personnel at configuration site or patient transfer site.

- □ OP3M1. Conduct reconnaissance flight and provide for scene safety.
- □ OP3M2. Coordinate with ground personnel, ATGS, and other functions involved in emergency extraction.

OP4 Lack of adequate helicopter crewmembers/Short-haulers/EMT's for the overall mission.

- □ OP4M1. Ensure, develop, and identify a pool of qualified personnel prior to mission.

OP5 Lack of program oversight to ensure standardization and quality assurance.

- □ OP5M1. Have in place standard unit organizational chart including Forest Aviation Officer, Unit Aviation Officer, Full complement of helicopter management in place.

OP6 Not all Short-haul personnel have received a briefing resulting in confusion prior to or during mission.

□ OP6M1. Ensure all participants are briefed prior to the mission.

OP6.1 Post-flight debriefings are not consistently performed resulting in loss of mission information and lessons learned.

□ OP6.1M1. Helicopter Managers and Short-haulers are responsible to seek and encourage feedback during After Action Reviews (AARs) and debriefings at end of each phase of mission.

□ OP6.1M2. Ensure mission evaluation documentation is completed and reported to the NAHOS.

OP7 Insufficient or unfamiliar medical plan for incident or local unit.

□ OP7M1. Ensure a medical plan with all pertinent information is in place and brief accordingly.

□ OP7M2. Prior to mission planning coordinate with IMT's, Dispatch centers, Local units as appropriate.

OP8 Outside ground or air resource medical assistance is not available in some Short-haul operations areas.

□ OP8M1. Ensure Medical Plan identifies a source and location to meet outside medical transport assets.

□ OP8M2. Ensure Medical Plan provides for air evacuation and ground evacuation contingencies.

OP9 Short-haul personnel lack adequate medical training for field emergencies.

□ OP9M2. Ensure an EMT is a component of every Short-haul mission.

OP10 Local unit, IMT's, Dispatch, unfamiliar with FSSH Program capabilities and limitations.

□ OP10M1. Communicate preseason and prior to conducting missions, on capabilities and limitations.

□ OP10M2. Develop a Short-haul resource user's guide describing capabilities and limitations. (Helicopter/module Information Sheet)

OP11 Non-standardized operational procedures.

□ OP11M1. Follow standardized operational procedures identified in SSHO.

OP12 Requesting a Short-haul mission that exceeds the capabilities of the resource and personnel.

□ OP12M1. Work within the scope of the SSHO and mission parameters.

OP13 Improper rigging of Short-hauler/attendant/litter to Short-haul system.

□ OP13M1. Perform a buddy/spotter check before each flight. Follow SSHO procedures.

OP14 Improper rigging of Short-haul system to aircraft.

□ OP14M1. Shut aircraft down at configuration site. Spotter and pilot check prior to starting mission.

OP15 Human external cargo collision with terrain or objects

□ OP15M1. Ensure Short-haul spotter in aircraft.

□ OP15M2. Positive communications between pilot, spotter, attendant or Short-hauler.

OP16 Lack of a crash rescue kit on an operation.

□ OP16M1. Ensure crash rescue kits are available as needed at the helibase during Short-haul operations.

OP17 Lack of emergency procedures training prior to actual missions

□ OP17M1. Short-haul Spotters, Short-haulers, and pilot preseason and prior to missions discuss expectations in the event of a helicopter loss of control or power failure.

OP18 Inflight aircraft emergency of an immediate nature.

□ OP18M1. Implement emergency procedures identified in the SSHO.

OP19 Inadvertent human cargo release.

□ OP19M1. Check cargo hook prior to mission, pilot and spotter familiarization and utilization of primary and secondary release system.

OP20 Intentional human cargo release

□ OP20M1. Short-haul Spotters, Short-haulers, and pilot preseason and prior to missions discuss expectations and alternatives to increase the survivability in the event of a helicopter loss of control or power failure.

OP21 Pilot loss of vertical reference.

□ OP21M1. Pilot and crew will assess the insert/extract site to assure the capability to maintain adequate references via recon.

□ OP21M2. Short-haul Spotter on board to assist pilot with vertical reference and identify hazards.

OP22 Unclear/misunderstood communications.

□ OP22M1. Utilize clear text and standardized challenge and response communications.

OP23 Exposure to traumatic events involving loss of human life or severe injury.

- □ OP23M1. Preseason preparation using resources such as "Stress Control and Resilience Guide".
- □ OP23M2. Implement Critical Incident Stress Management post incident as needed.

OP24. Overwhelming sense of urgency in life threating situation.

- □ OP24M1. During configuration phase, consider shutting down aircraft.

OP25 Falling debris.

- □ OP25M1. Utilize appropriate head protection when working under or in the vicinity of a hovering helicopter.
- □ OP25M2. Include hazard awareness in Short-haul training and refresher courses as well as daily operation plans and briefings.
- □ OP25M3. Ensure clearance and rotor height is adequate at site and check surrounding area for hazard trees. If necessary, relocate patient to more suitable site.

OP26 Fire Behavior.

- □ OP26M1. Ensure LCES is in place. If necessary, relocate patient to more suitable site.
- □ OP26M2. Ensure helicopter does not impact fire behavior by maintaining sufficient height above ground.

OP27 Low visibility due to smoke, dust, darkness, etc.

- □ OP27M1. Follow NSHO standards. Establish trigger points to cease operations.
- □ OP27M2. Select site so that the spotter can maintain positive visual contact with Short-haulers to the ground, to insert and extract.

OP28 Lack of training short-haul mishaps being reported.

- □ OP28M1. ALL short-haul mishaps will be reported through the SAFECOM system until there is another system is approved.

Short-haul Equipment System

EQ1 Non-standard and non-agency approved equipment resulting in unfamiliarity in utilization of equipment.

- □ EQ1M2. Use only equipment identified and approved in the SSHO.

EQ4 Spotter tether attachment point is not uniformly defined or tested in some aircraft leading to tether attachment failure.

- □ EQ4M1. Ensure Spotter tether attachment point is approved, inspected, and tested annually, installed correctly, inspected as manufacturer recommendations.

EQ5 Short-haul equipment improperly rigged on the aircraft.

- □ EQ5M1. Pilot and Short-haul Spotter will perform the initial rigging of the aircraft for Short-haul operations.

EQ6 Pilot utilizing a length of line not proficient with.

- □ EQ6M1. Ensure pilot carding and approved prior to mission execution.
- □ EQ6M2. Limit pilot to line length carded for by HPI. Short-haul Spotter is responsible for verifying the maximum line carding matches line length use in the operation.

EQ7 Short-hauler / EMT Short-hauler without personal protective equipment or supplies at Short-haul landing site.

- □ EQ7M1. Ensure standardized haul bag with personnel protective equipment.

Short-haul Medical System

MTS1 EMT unfamiliar with medical equipment.

- □ MTS1S2. Trained on use and care of standardized equipment.

MTS2 Rendering services beyond scope of practice.

- □ MT2S1. EMT's knowledgeable of scope of practice limitations, and able to provide care only within scope.
- □ MT2S2. Ensure certification is current and all training has been conducted.

MTS3 Utilizing an inappropriate Short-haul Extraction packaging system.

- □ MT3S1. Accurate patient assessment by EMT.
- □ MTS32. Correct selection of transport method. (Helicopter Rescue Bag/Litter/Screamer Suit)

Short-haul Aircraft System

AC2 Exceeding the performance capability of the Type 3 helicopters.

- □ AC2M1. Operate per NWCG Standards for Helicopter Operations (NSHO), Rotorcraft Flight Manual (RFM) and the Standards for Short-haul Operations.
- □ AC2M2. Ensure make and model meet FAR Part 27 specifications.

AC3 Environmental conditions such as terrain, density altitude, elevation, winds, and temperature impacting helicopter performance.

- □ AC3M1. Operate per NWCG Standards for Helicopter Operations (NSHO), Rotorcraft Flight Manual (RFM) and the Standards for Short-haul Operations.

AC4 Aircraft not properly equipped for human loads.

□ AC4M2. Ensure Short-haul Spotter verifies cargo hook system is approved by the agency for human loads.

Appendix M. Booster In-Briefing and Assurance Form

Complete the following tasks with program management signature prior to conducting live flights.

Table M 1 Boosting Checklist

Hosting Unit: _____	Boosting Unit: _____
Agency:	Agency:

Overview

Discussion topics may include:

- Agency background, crew background, vender/pilot background, booster objectives and experience
- Interoperability plan, mission profiles (swift water, high angle, etc.), and administrative responsibilities.

Aircraft

Discussion topics may include:

- Aircraft make and model, emergency procedures, configurations, limitations, aircraft anchor/release system, pilot orientation, and the standard aircraft briefing including alse equipment.

Readiness

Discussion topics may include:

- Procedural differences, facilities, local environment and typical terrain, manifesting and load calculations, gear location and staging, communication (frequencies, programming, comms plan, and phone numbers), aircraft configurations (fire, sar, medevac, short-haul, project, cross country, etc.), GAR, crew SOPs, fire red cards/qualifications, and booster detail logistics.

Equipment

Discussion topics may include:

- Interoperability differences (policy, dual hook, y-lanyard/rope, PPE, etc.), harness, knife, tethers (e.g., HEC/cargo/spotter), carabiners, attachment points, haul line configurations, medical extraction devices.

Positions

Discussion topics may include:

- Spotter: Spotter equipment/ops check, spotter tether and attachment, spotter role and seating location, communications (between spotter, hauler, pilot, other aircraft), emergency procedures, radio management, and oversight.
- Hauler / attendant: Hauler equipment/ops check, hauler tether and attachment, hauler role, communications and hand signals, configuration and line attachment, emergency procedures, on scene management.

Medical

Discussion topics may include:

- Local emergency medical advisor, national vs regional medical direction, certification level, agency vs public, transfer of information during patient contact/care, equipment for extraction onsite, SOPs for patient extraction.

Interoperability Plan

Required topics:

- Brief differences in equipment and training.
- Brief and review the “Equipment Check” for the helicopter spotter, and short-hauler.
- Review verbal and non-verbal communication by the pilot, spotter, and short- hauler.
- Review emergency procedures between the pilot, spotter, and short-hauler mockup and walk-through of a proficiency short-haul.
- Complete and discuss an operational risk assessment (GAR).
- Perform a minimum of one short-haul proficiency for all detailed personnel and determine if more proficiency flights are required.
- Completed an AAR for the proficiency flight(s) and document the use of equipment.

Acknowledgement

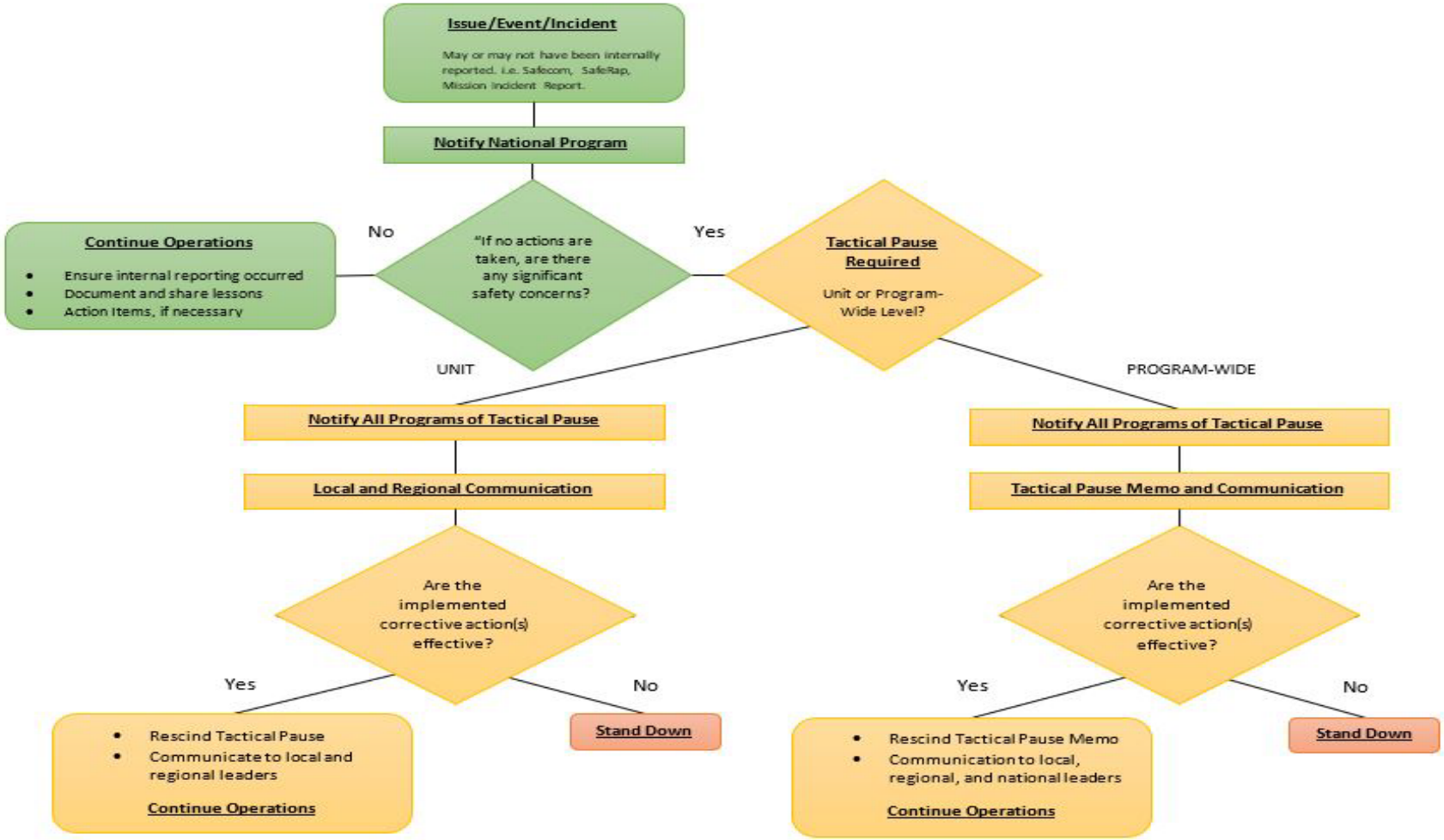
Once all sections have been thoroughly discussed and successfully completed, sign below.use one form for each booster.

Table M 2 Booster Information Acknowledgement

Hosting Spotter Name	Booster Name / Position:
Signature / Date:	Signature / Date:

Appendix N. Program Tactical Pause, Stand Down or Shutdown Protocols

Table N 1 Pause, Stand Down, or Shutdown Flowchart



Intent: The flowchart provides a process for aviation program managers to apply a standardized response allowing time and space, flexibility, and communication for unintended events or incidents, depending on the severity, to determine the best course of action to promote resolution.

Tactical Pause- A deliberate break in the operation that allows an organization to regroup.

Authority to Implement and Rescind: Program Manager

Notification Methods: (1) Unit Level: Email to local and regional managers and leadership (2) Program-Wide: "Initial Notification of Mission Incident Requiring System Management" Memo to local, regional, and national leadership

Minimum Notification List: All Program-Wide Managers, Local and Unit Dispatches and Duty Officers, Regional Fire Director, Aviation Officer, and

Aviation Safety Manager Common characteristics of a Tactical Pause may include:

- Generally shorter in duration
- Industry may be involved for solutions
- Programmatic (Internal) Process
- Can be at the Unit level and/or programmatic issues, but are more likely to be local in nature

Stand Down- A suspension from an alert state or state of readiness.

Authority to Implement: Program Manager Authority to Rescind: Assistant Director-Aviation with Branch

Chiefs' concurrence Notification Method: Letter

Minimum Notification List: All Program-Wide Managers, Regional and Nation Coordination Centers, Regional Fire Directors, Aviation Officers, and Aviation Safety Managers, National Aviation Branch Chiefs and National Fire Directors

Common characteristics of a Stand Down may include:

- Generally extended duration
- Industry is often involved for solutions
- External parties and leadership are aware of the issues and the status of the program
- Can be at the Unit level and/or programmatic issues, but are more likely to be programmatic

Shut Down- The cessation or long-term suspension of an operation

or program. Authority to Implement and Rescind: Chief,

United States Forest Service Notification Method: Letter

Minimum Notification List: All Program-Wide Managers, Regional and Nation Coordination Centers, Regional Fire Directors, Aviation Officers, and Aviation Safety Managers, National Aviation Branch Chiefs and National Fire Directors

Common characteristics of a Shut Down may include:

- Long duration
- Reevaluation of associated risks and implementation of programmatic mitigations
- Event resulting in, or potential to cause, major system damage or catastrophic outcome

Appendix O. NPS and FS Short-haul Interoperability Plan

Introduction

In 2015 the Forest Service Short-haul Program was developed and implemented with the National Park Service (NPS) providing the guidance and leadership needed to initiate this helicopter program from their decades of experience.

Since then, Interagency Helicopter Operations Subcommittee (IHOpS) has tasked the two agencies' short-haul working teams to align practices, equipment, and procedures to provide and support a consistent and standardized response particularly when operating in the interagency wildland fire environment. By combining efforts, the agencies have already seen benefits to operations in support of the public, agency personnel,

Incident Management Teams, and interagency cooperators by designing similar staffing requirements, equipment, and training standards. While the founding doctrines between the two agencies have differences, the mission to insert and extract personnel from difficult terrain, environments, and situations continues to be the common objective.

Intent

Helicopter short-haul programs for the Forest Service and NPS provide a high standard of operational support to fire management through aerial insertion and extraction capabilities. Each agency will function under their approved operations plan until personnel from each agency staff an aircraft together. Once that occurs, this Appendix, The NPS and USFS Helicopter Short-haul Interoperability Plan, will provide guidance. Both agencies shall work in a collaborative manner to operate with mixed agency short-haul personnel. The agreed- upon level of interoperability will be identified below in the Operating Plan.

Operating Plan

While recognizing that agency-specific needs may preclude comprehensive standardization of all procedures and equipment, the interoperability of the two agencies' short-haul programs shall be maintained to ensure operating procedures and equipment remain compatible. This is accomplished by the operating plan accepting the differences between the two agencies. Below are the differences and mutually agreed upon points:

Aircraft and Pilot Carding

DOI and Forest Service requirements for short-haul operations are standardized and consistent through the Interagency Helicopter Pilot Practical Test Standards and aircraft carding standards.

Training

Annual short-haul training and its requirements for both initial and refresher participants are outlined and standardized for both agencies. An annual short-haul training must be attended. Both agencies will accept each other's annual training and attending an individual agency's training is not required to operate with that agency. However, if a USFS employee attends a NPS short-haul annual training, completion of N9059 or RT9059F (CRM 7 Skills) is still required for completion of their training.

Short-haul trainings for either agency provide similar information for short-haul operations and contain: Crew Resource Management (CRM), equipment, policy changes and updates, communication procedures, emergency procedures, review of lessons learned from Human External Cargo (HEC) operations, and annual ground school and flight proficiency requirements. The NPS have agreed that the following course are considered equivalent:

- Short-hauler (SHLR) Training: FS-511 and RT-511F to NP 600
- Spotter (SHLS) Training: FS-512 and RT-512F to NP 601

Qualifications

Short-haul qualifications are standardized and listed within the NWCG 310-1 Federal Wildland Fire Qualifications Supplement.

- Experience for trainees to obtain qualifications may occur through interoperability assignments, however, certification of qualifications must be approved by the personnel's agency.

Equipment

The following equipment must be used:

- Must have an approved Dual Hook System with a FAA certified HEC Hook for attachment as defined by 14 CFR Part 27.865 (c) for short-haulers on the line.
- For all onboard flight activities, Personal Protective Equipment (PPE) shall be worn in accordance with current contractual requirements, NWCG Standards for Helicopter Operations (NSHO) and Interagency Aviation Life Support Equipment (ALSE) standards during operations.
- Each personnel's agency approved equipment will be accepted by the hosting agency.
- Minimum of one attachment point for short-hauler.

- Personnel will be familiar with medical and short-haul equipment; only equipment that is approved by their agency will be used by that individual.

Environments

Personnel will only be approved and authorized to operate as a short-hauler or a spotter commensurate with their training and agency policy. Personnel will not perform any short-haul operational functions in technical environments and/or requiring specialized equipment or training for which the personnel does not already possess (e.g., swift water operations, forested canopies, or wildland fire operations).

Communications

All communications are standardized between the two agencies including hand-signals, a verbal script, and emergency procedure communications for the pilot, spotter, and short-hauler(s). The standard verbal script for both agencies allows for clear communications and operational specifics when necessary.

Personnel Ordering

For wildland fire incidents, the National Wildfire Coordinating Group (NWCG) has established incident qualifications to ensure standardization of minimum training requirements of the Short-haul positions. These qualifications are identified in the NWCG PMS 310-1 Federal Wildland Fire Qualifications Supplement and may be used in the ordering of personnel between or within agencies.

Risk Assessment

Both agencies have established and standardized the use of the General Assessment of Risk (GAR) Risk Assessment for helicopter short-haul operations.

Proficiencies

Proficiency short-hauls will be required to be completed and at the hosting agency's expense (if not assigned to an incident) to ensure no loss of currency by the detailing personnel.

Procedures

Before engaging in interagency short-haul operations, the following shall occur annually at a minimum:

- Briefing of differences in equipment and training
- Brief and review "Equipment Check" for the helicopter, spotter, and short-hauler. These are outlined in the agency's operational plans.
- Review of verbal and non-verbal communication by the pilot, spotter, and short-hauler
- Review emergency procedures between the pilot, spotter, and short-hauler
- Mockup and walk-through of a proficiency short-haul
- Complete and discuss an operational risk assessment (GAR)
- Hosting base manager or check spotter will complete the Interoperability Short-haul Booster In- briefing and Assurance Form or rostered on an annual training completion memo.
- Perform a minimum of one short-haul proficiency for all detailed personnel and determine if more proficiency flights are required
- Complete an AAR for the proficiency flight(s) and document the use of equipment

Emergency Procedures

Emergency procedures are standardized between both agencies.

Documentation

Both agencies are responsible for maintaining their own documentation records for personnel, aircraft, and equipment. For reporting purposes, the hosting unit will document any interoperable operations within their agency's established processes, and it will be reported to the HSHU Chair for annual data compilation.

Funding

Funding for short-haul operations, ordering, training, and other standard costs are the hosting unit's responsibility. Any questions associated to funding should be directed to the NPS's National Helicopter Operations Specialist or the Forest Service's National Assistant Helicopter Operations Specialist.

Incident Reporting

All accidents and incidents will be reported according to the host agency's policies or the agency that has operational control. Injuries shall be report in accordance with the employee's agency. The Base Manager will immediately notify the Helicopter Short-haul Unit Chair or Vice Chair, regardless of agency, when an incident occurs that involves an immediate risk to other bases. Incidents or incidents with potential will be documented on the SAFECOM in addition to any internal program reporting system.

Quality Assurance

Annual review of the Interoperability Plan will occur by the Helicopter Short-haul Unit (HSHU) and any proposed changes will be agreed upon by the HSHU and added to the Operational Plan for each agency. The Operational Plans are approved by the Assistant Director, Aviation for the Forest Service, and the National Aviation Manager for the NPS respectively to ensure appropriate oversight and authorization. To ensure Interoperability standards are upheld and continued between the two agencies, an Interagency Short-haul Operations Quality Assurance was developed and will be used by both agencies independently and during Interoperability reviews.