

# **Pennsylvania Helicopter Aquatic Rescue Team (PA-HART)**



## **Standard Operating Guidelines (SOGs) and Training Manual**

**Revised February 2017**

Prepared by: Pennsylvania Army National Guard  
Pennsylvania Fish and Boat Commission  
Pennsylvania Emergency Management Agency



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Special thanks to the Texas HART, Maryland HART and North Carolina HART  
for their assistance in preparing this document.



## **Section 1 – PA-HART Mission Statement**

The Pennsylvania Helicopter Aquatic Rescue Team (PA-HART) is a joint partnership between the Pennsylvania Army National Guard (PANG), the Pennsylvania Fish and Boat Commission (PFBC), and the Pennsylvania Emergency Management Agency (PEMA) along with civilian rescue technicians and civilian trained swiftwater rescue specialists. This highly specialized aerial search and rescue team provides an air asset for the Commonwealth of Pennsylvania and the nation to respond to natural and manmade disasters incidents. Team members receive technical training that prepares them to engage in hostile environmental conditions both urban and wilderness setting. PA-HART members risk their lives so that others may live.

## **Section 2 - Program Administration**

### **Section 2.1 – Overview**

#### **Pennsylvania Emergency Management Agency (PEMA)**

PEMA's mission is to save lives, reduce suffering, and protect property and the environment by leading and coordinating Commonwealth agencies and resources to prevent, protect, prepare, respond and recover from any man-made or natural disaster.

#### **PEMA 24 Hour Commonwealth Response Coordination Center (CRCC)**

The PEMA 24 Hour CRCC will receive notifications of emergencies from local Emergency Managers when there is a possibility of a PA-HART mission. The 24 Hour Center will make appropriate notifications to the PFBC Agency Representative (AR), PEMA designee, DMVA AR, and HART Program Manager or designee

#### **Pennsylvania Army National Guard (PANG)**

The PANG provides air frames with hoist operations for utilization on PA-HART missions. The PANG staffs qualified pilots and crew chiefs trained for search and rescue missions.

#### **Pennsylvania Fish and Boat Commission (PFBC)**

The PFBC is the state agency responsible for coordinating swift water rescue training in the Commonwealth of Pennsylvania. The PFBC is the lead agency for coordinating water/land/air rescue training for the PA-HART.

#### **Local Emergency Agencies**

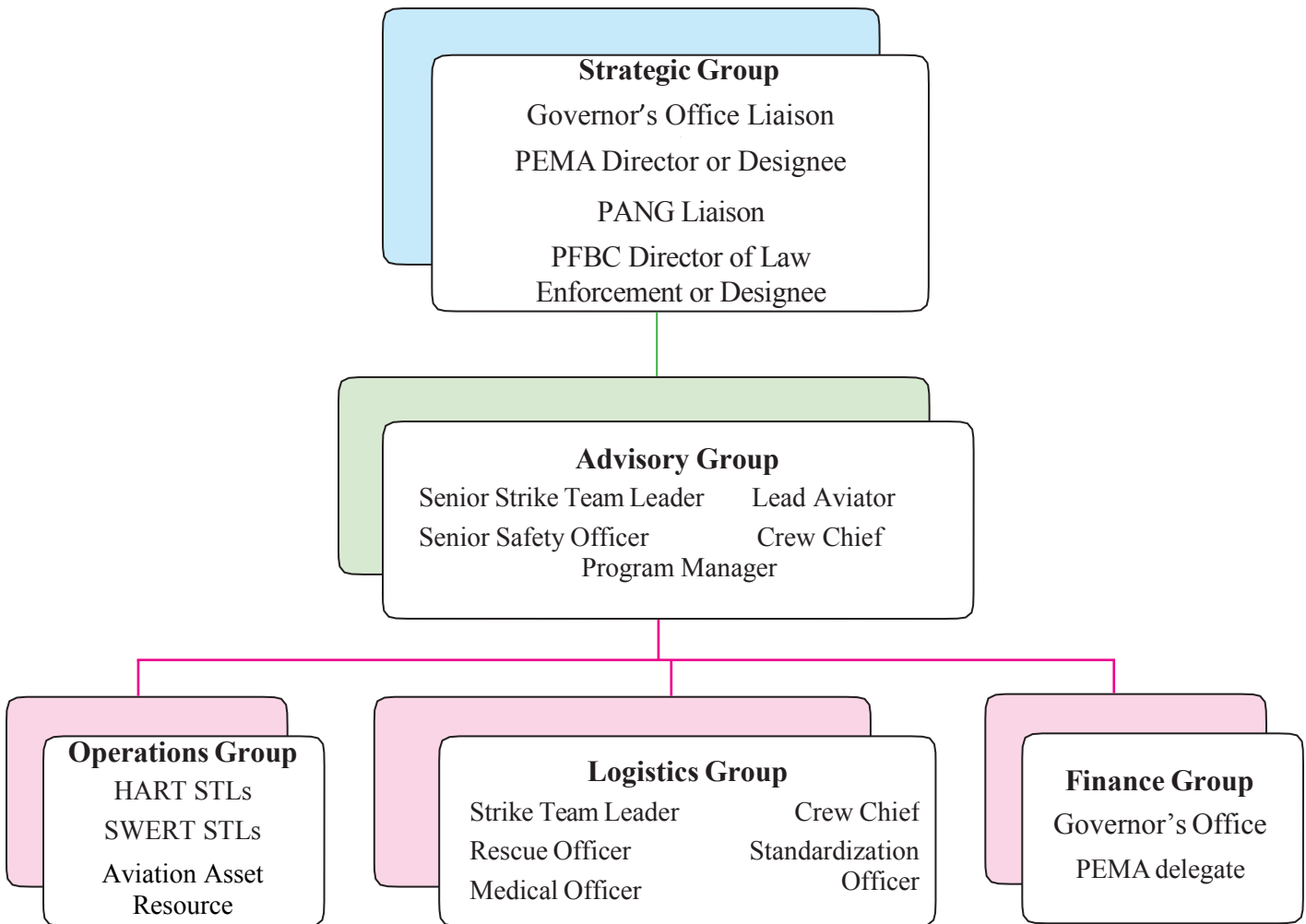
Certified Local Fire and Rescue, Police, and EMS Departments provide technicians for the PA-HART program to supplement PFBC trained rescue technicians. These agencies commit the time, talent and treasure to staff the PA-HART with professional minded individuals.

### **Section 2.2 - Mission Types**

The mission types to which the PA-HART respond are complex and varied, and include, but are not limited to SAR/victim rescue/extraction from the following scenarios:

- Vehicles
- Mountain/wilderness
- Urban
- Structural (PEAK/breaching/window-door insertion)
- Forest/tree
- Inland/open water

## Section 2.3 Organizational Chart Overview



**Strategic Group** – establishes the overall mission profile, future vision, and limitations. Provides control mechanism for PA-HART liaisons' with State and Governor's Office personnel. Considers the Concept of Operations (CONOPS) from the Advisory Group.

**Advisory Group** - provides input to the Strategic Group on CONOPS Plan elements, Incident Action Plan, Training Plan and capabilities/limitations information to the Strategic Group

**Operations Group** - responsible for training and conducting field operations, candidate application review and provide asset recommendations to the Advisory Group.

**Logistic Group** – establish and maintain all equipment cache lists and load plans. Identify requirements for self-sustainment for 72 hour period and develop list of cache needs for a 2 week deployment.

**Finance Group** - assists and develops upstream and downstream funding streams and recoup costs post deployment.

*See Appendix A for detailed duty descriptions for the PA-HART positions listed in the above organizational chart*

## Section 2.4 Prerequisites and Testing

### **PANG**

PANG personnel shall operate in accordance with US Army training manuals and SOPs. These SOPs are held at each Army Aviation Site Facility (AASF). Records of approved PANG individuals to conduct PA-HART operations are held at each AASF.

## **PA-HART**

The testing and qualification process for additional or replacement PA-HART personnel is administered and supervised by the PFBC and the PANG. The PA-HART Program Manager will determine the number of vacant positions and airframe assignments. The PA-HART training staff will perform the testing of qualified candidates. Additionally, the PA-HART training staff will establish a list of qualified candidates based on test results. Candidate listing is from high to low score. The PA-HART training staff consists of the Program Manager, Senior Strike Team Leader and Strike Team Leaders. Candidates are assigned after successful completion of indoctrination training and approval by PA-HART Program Manager, Training Staff and PAANG.

All applicant information and testing results shall be maintained by the PA-HART Program Manager for a period of one (1) year after PA-HART member withdrawal. The application and testing results for non-selected applicants shall be maintained for one (1) year after application submittal.

Prior to the testing date, the candidate must submit to the PA-HART Program Manager the following documentation:

- Letter from applicant's agency head authorizing PA-HART activity participation.
- Proof of Workman's Compensation Coverage
- Proof of completion of the following requirements:
  - CPR/AED
  - EMT-B
  - Swift Water Rescue Technician per NFPA 1670/NFPA 1006
  - Hazardous Materials Operations per NFPA 472 / OSHA 1910.120(Q)(6)(i)
  - NIMS ICS 100
  - NIMS ICS 200
  - NIMS ICS 700

It is recommended, but not necessary, the applicant supplement the above requirements with the following certifications:

- EMT-P
- Rope Rescue Operation per NFPA 1670/NFPA 1006
- NIMS ICS 300
- NIMS ICS 400

## **Physical and Skills Evaluation**

Each candidate will be subjected and evaluated on a series of physical and skill challenges including physical fitness, swimming ability and related helicopter rescue tasks. Each skill station is based on accepted national standards, the Authority Having Jurisdiction (AHJ) and current NIMS Search and Rescue credentialing requirements for the position of Helicopter Rescue Technician (attached). Points will be awarded from high to low based on candidate performance. The candidate has the right to stop during any skill station, but no points are awarded. Furthermore, the evaluators have the right to stop the candidate at any time if they feel the candidate's safety is compromised.

### ***Swimming Skills***

Swimming skills scoring is determined on the Navy Standards (OPNVINST 6110.1H).

#### **Skill station 1** - 300 Meter/327 Yard Swim

The candidate must swim 300 meters/327 yards without stopping using a forward stroke (Breast or Freestyle) and without using any swim aids such as a dive mask, fins, snorkel or floatation device. Swimming goggles are permitted for swim testing. Stopping and standing at either end of the pool during this exercise will result in automatic disqualification from the evaluation process.

**Skill Station 2** - 400 Yard Snorkel Swim

Using a dive mask, fins, snorkel, and a swimsuit (no buoyancy aid such as a PFD) and swimming the entire time with their face in the water and breathing through the snorkel, the candidate must swim non-stop for 400 yards. The candidate must not use their arms at any time.

**Skill Station 3** - 100 Yard Rescue Tow

The candidate must push or tow an inert survivor while wearing a tri-sar harness, swim fins, mask and snorkel on the surface for 100 yards non-stop and without assistance.

**Skill Station 4** - Dunker Escape

The candidate will be placed securely in the dunker device after receiving instruction. The device is then launched forward into the water resulting in complete submersion of the candidate in an inverted position. The candidate, upon entering the water, will conduct a minimum five second count and escape the device as instructed. The candidate will utilize a HEED device and swim clear of the device after escaping. This is a pass/fail station.

**Skill Station 5** – Treading Water

The candidate must tread water unaided for 10 minute period. The candidate must not touch the bottom or side of the pool. This is a pass/fail station.

***Physical Fitness***

**Skill Station 1** - Run, jog, or walk 1 ½ miles unaided based on Navy Standards OPNAVINST 6110-1H.

**Skill Station 2** – Push-ups are based on Navy Standards OPNAVINST 6110-1H.

**Skill Station 3** – Curl ups are based on Navy Standards OPNAVINST 6110-1H.

***Rope Rescue Rigging Skills***

**Skill Station 1** - Knots

The candidate will be given a six foot section of rope and will tie the prescribed knots and/or bends. All knots must be completed in order given. A maximum of 5 minutes total will be allowed for this station.

Figure 8 with a bight

Figure 8 with a double bight

Directional 8 with bight pointing towards anchor

Directional 8 with bight pointing away from anchor

Bowline with a bight on the object

Double Fishermen's Bend

Water Knot/Webbing

Tensionless Anchor



**Helicopter Operations**

**Skill Station 1** – Helicopter Operations

Describe

Reference UH-60 Aircrew Training Manual (ATM)

The Candidate shall be evaluated utilizing the scoring card as show below:

**Pennsylvania Helicopter Aquatic Rescue Team  
Candidate Evaluation**

**Total Points**

**Candidate #** \_\_\_\_\_ -

**Candidate Name** \_\_\_\_\_

**Agency:** \_\_\_\_\_

**Documentation**

Agency Commitment \_\_\_\_\_

Workman's Comp Form \_\_\_\_\_

\_\_\_\_\_ Air \_\_\_\_\_

Agreement Letter \_\_\_\_\_

**Points**

**Confirmation of Requisite Training**

CPR/AED or EMT-B or Above \_\_\_\_\_

NFPA/1670 Water Rescue for the First Responder \_\_\_\_\_

NFPA/1670 Water Rescue and Emergency Response \_\_\_\_\_

NFPA/1670 Advanced Line System Rescue \_\_\_\_\_

NFPA/1670 Emergency Boat Operation Rescue \_\_\_\_\_

NFPA/1670 Ice Rescue and Emergency Response \_\_\_\_\_

NIMS 100 \_\_\_\_\_

NIMS 200 \_\_\_\_\_

NIMS 700 \_\_\_\_\_

**Points**

**Training Bonus Points (1) Per Class**

NFPA/1006/1670 Rope Rescue Operations \_\_\_\_\_

NIMS 300 \_\_\_\_\_

NIMS 400 \_\_\_\_\_

*Swimming Skills*

**Skill Station 1** – 300 meter/327 yard swim

Points

Time

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

**Skill Station 2** – 400 yard snorkel swim

Points

Time

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

**Skill Station 3** – 100 yard rescue tow

Points

Time

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

Candidate # \_\_\_\_\_

**Skill Station 4 - Dunker Escape**

**Pass**

**Fail**

**Skill Station 5 - Tread Water 10 minutes**

**Pass**

**Fail**

Candidate # \_\_\_\_\_

*Physical Fitness*

**Skill Station 1** – Run, jog, or walk one mile unaided

Points

Time

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

**Skill Station 2** – Push Ups

Points

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

**Skill Station 3** - Curl Ups

Points

Time

Performance	Points
Maximum	100
Outstanding	90
Excellent	75
Good	60
Satisfactory	45
Failure	30

Candidate # \_\_\_\_\_

***Rope Rescue Rigging Skills***

**Skill Station 1- Knots [Five (5) Minute Time]**

**Points**

<b>Knots - 0.5 points/knot</b>	<b>Points</b>
Figure 8 with a bight	
Figure 8 with a double bight	
Directional Figure 8 with a bight pointing toward the anchor	
Directional Figure 8 with a bight pointing away the anchor	
Bowline with a bight on an object	
Tensionless Anchor	
Water Knot/Webbing	
Double Fishermen's Knot	

Candidate # \_\_\_\_\_

**Helicopter Operations**

**Skill Station 1 - Helicopter Operations**

**Fail**

**Pass**

Comments:

## **SECTION 2.5 Deployment Overview**

### **Mission Assignment and Launch Authority**

Mission requests shall follow the following progression:

1. The local emergency manager shall notify the Commonwealth Response Coordination Center (CRCC) for PA-HART team activation. PEMA and its subsidiary programs are the supporting elements to local jurisdictions during critical emergency incidents. Therefore, PA-HART is not a command element of any organization and is only deployed as a supporting element to aid local responders when a rescue is beyond their capability or cannot be accomplished in a safe manner.
2. The CRCC will follow internal procedures on the notification of key PEMA personnel and establish a conference call to jointly discuss the mission with PFBC Agency Representative (AR), PEMA designee, DMVA AR, and HART Program Manager or designee. These personnel will make contact with the on-scene incident commander and begin PA-HART activation.
3. PEMA determines mission viability and coordinates subsequent actions between PFBC AR, State Army Aviation Officer (SAAO), Lead Aviator or designee, and Program Manager or designee. Coordination activities are usually accomplished through a conference call. Risk assessments, relative maps, weather conditions, and hazards are identified and incorporated in the decision making process.
4. If PFBC AR accepts the mission, then PEMA provides a mission number to move civilian technicians by ground. PEMA will present the findings of the decision making group and give the recommendation of a viable air mission. Once mission is approved and sent to the PANG JEOC and the SAAO or designee will start initial mission planning and develop communications with PA-HART ground personnel. After initial mission planning the SAAO will advise if the mission can be accomplished based on equipment and personnel availability, and risk.
5. PEMA notifies the PFBC Lead PLO and Program Manager of the air segment of the mission who in turn notifies and briefs PA-HART Strike Team Leaders. The Lead Aviator shall convey the mission information to affected aircrews.

## **SECTION 2.6 Logistics**

### **PA-HART Equipment Inventory**

Equipment issued to PA-HART shall maintain issued equipment in clean and working order. All equipment shall be inspected before and after each use. Manufactures recommended practices; care and inspections shall also be followed. Deficient equipment shall be taken out-of-service and clearly marked "out-of-service". The Logistics Officer shall be notified of all equipment taken out-of-service and arrange for repair or replacement.

All issued equipment shall be inspected at least once a quarter, regardless of prior use. Appropriate equipment logs shall be maintained by Logistics Officer.

### **PA-HART Equipment Issue**

Sponsoring jurisdictions are required to outfit each PA-HART member with basic PPE. A listing of basic PPE can be found in Section 5, PA-HART PPE. Some items will be procured through grant, corporate sponsorship, Government Surplus Agency and PEMA.

# SECTION 2.7 PA-HART Rescue Mission Request Form

PA-HART Rescue Mission Request Form  
Pennsylvania Emergency Management Agency

**PA-HART MISSION REQUEST**

**MISSION INFORMATION**

Point of Contact/Title: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

PA-HART member on scene:  \_\_\_\_\_ is 800 MHz network operable in area:  yes  no  
Team Leader Name

Helispot: (Lat/Long) IWGS84 INAD27 \_\_\_\_\_ N/ \_\_\_\_\_ W, @ \_\_\_\_\_  
ex 40°19.2426'W 78°50.7540'W Location (County)

Secondary Helispot:  WGS84  NAD27 \_\_\_\_\_ N/ \_\_\_\_\_ W, @ \_\_\_\_\_  
ex 40°19.2426'W 78°50.7540'W Location (County)

Helispot radio freq: \_\_\_\_\_ rx \_\_\_\_\_ tx \_\_\_\_\_ PL \_\_\_\_\_ DPL \_\_\_\_\_ 800 MHz ch: \_\_\_\_\_

Helispot Manager Callsign: \_\_\_\_\_ Helispot Marking: \_\_\_\_\_  
i.e. Smoke, Paint, Signal

Rescue Site:  WGS84  NAD27 \_\_\_\_\_ N/ \_\_\_\_\_ W, Rescue Site Callsign \_\_\_\_\_  
ex 40°19.2426'W 78°50.7540'W

Rescue Site radio freq: \_\_\_\_\_ rx \_\_\_\_\_ tx \_\_\_\_\_ PL \_\_\_\_\_ DPL \_\_\_\_\_ 800 MHz ch: \_\_\_\_\_

Nearest Airfield: \_\_\_\_\_ Nearest Airfield with JET-A/JP8 fuel: \_\_\_\_\_

Nearest Hospital with helipad: \_\_\_\_\_ Hospital City, St \_\_\_\_\_

Helipad weight rating: \_\_\_\_\_ Hospital Freq: \_\_\_\_\_ Hospital Phone: \_\_\_\_\_

Drop point for patient if other than Helispot: \_\_\_\_\_  
Location (County)

Drop off Point:  WGS84  NAD27 \_\_\_\_\_ N/ \_\_\_\_\_ W, Drop off Point Callsign \_\_\_\_\_  
ex 40°19.2426'W 78°50.7540'W

**SITUATION SUMMARY**

Terrain Type:  Mountainous  Hilly  Flat  Wooded  Open Fields  Flood (swift)  Flood (still)

Obstacles:  Power Lines  Unlighted Towers  Bridges  Smoke/Fog  Other (List)

Weather Conditions at site: \_\_\_\_\_

Rescue via:  Short haul  Hoist Number of on-scene personnel to be extracted: \_\_\_\_\_

Number of: \_\_\_\_\_ ambulatory patients \_\_\_\_\_ non-ambulatory patients Packaged on a long spine board?  yes  no

Injuries: \_\_\_\_\_

Sketch Helispot below: note any obstacles such as trees, powerlines, buildings, etc....



Additional Information: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## SECTION 2.8 ICS 214/220 Forms

PA-HART personnel shall document daily activities, aircraft movements, training, rescue evolutions and victim contacts and/or extractions. Those activities will be recorded on a daily ICS 214 form and forwarded to the PA-HART Program Manager or designee during demobilization. An example has been completed and is provided for reference below.

Rescue tracking information, including a description of events, equipment used and survivor information, shall be tracked on the Rescue Tracking Form. That information will be turned in with the ICS 214 forms to the PA-HART Program Manager or designee.

Additionally, there may be times when PA-HART personnel find themselves providing medical care that is beyond basic level first aid to a survivor or crew member. In those instances, a more thorough documentation record is required detailing the triage of the patient, care provided and patient transfer.

<b>UNIT LOG</b>		1. Incident Name	2. Date Prepared 8/11/2012	3. Time Prepared 0830
4. Unit Name/Designators PA-HART/Blue Team		5. Unit Leader (Name and Position) Scott Grahn/ Senior Strike Team Leader		6. Operational Period 0845 to 1330
7. Personnel Roster Assigned				
Name		ICS Position		Home Base
Scott Grahn		Team Manager		Somerset County
George McFarland		Team Leader		Westmoreland County
Chris Calhoun		Helicopter Rescue Tech		Butler County
Matt Jones		Helicopter Rescue Tech		Westmoreland County
Kim Houser		Helicopter Rescue Tech		Westmoreland County
8. Activity Log				
Time	Major Events			
0845	Notification			
9. Prepared by (Name and Position) Scott Grahn				
PA-HART Senior Strike Team Leader				



## **SECTION 2.9 PA-HART Injury Reporting Procedures**

### **Workers Compensation and Permission to Participate**

PA-HART members participating in training or missions shall provide the PFBC with completed and correct volunteer and workers compensation paperwork so they are covered under workers compensation and have the permission to participate in PA-HART activities. A copy of this form will be filed with the PA-HART Program Manager.

### **ICS 208. Safety Message/Plan**

The ICS 208 Safety Message/Plan shall identify major hazards and risks associated with the event and are communicated to all participants by the Program Manager or designee.

This plan will identify general safety measures, such as proper PPE, proper aircraft approach and specific safety information regarding the nature of the training being conducted.

### **Injury Reporting**

Any injury must be immediately reported to the Strike Team Leader. Appropriate medical care will be used according to the ICS 206 Medical Plan.

## Section 2.10 PA-HART After Action Report (AAR)

This form will be completed by the Strike Team Leaders and forwarded to the Program Manager at the completion of operations.

Information listed is based on reasonably available data.

### After Action Report Form

PEMA Mission Number: \_\_\_\_\_ Date: \_\_\_\_\_

GPS Location: \_\_\_\_\_

Pilot: \_\_\_\_\_ Co-Pilot: \_\_\_\_\_ Crew Chief#1: \_\_\_\_\_

CrewChief#2: \_\_\_\_\_ Rescuer#1: \_\_\_\_\_ Rescuer#2: \_\_\_\_\_

#### Timeline (24 Hour clock):

Dispatched: \_\_\_\_\_ En-route: \_\_\_\_\_ On-Scene: \_\_\_\_\_

Last Scene: \_\_\_\_\_ Located: \_\_\_\_\_

Insertion Time: \_\_\_\_\_ Extrication Time: \_\_\_\_\_

Total Time (Dispatch to De-Mobilization): \_\_\_\_\_

#### Weather:

Temperature: HI: \_\_\_\_\_°F Low \_\_\_\_\_°F

Wind Direction: \_\_\_\_\_ (cardinal) Wind Speed: \_\_\_\_\_ knots Gust: \_\_\_\_\_ knots

\_\_\_\_\_ Thunder/Lightning \_\_\_\_\_ Tornado \_\_\_\_\_ Hurricane

#### Ceiling:

Clear  Scattered

Broken  Overcast

Ceiling Height: \_\_\_\_\_ Feet Visibility Distance: \_\_\_\_\_ Feet (Approximate)

#### Visibility Conditions:

Clear  Haze  Fog  Sand

Smoke  Dust  Mist  Spray

#### Precipitation:

None  Sleet

Rain(Light/Moderate/Heavy)  Snow(Flurries/Showers/Blizzard)

**Scene Information:**

Topography: \_\_\_\_\_ High (60°- 90°)    \_\_\_\_\_ Steep (40°- 60°)    \_\_\_\_\_ Low (15°- 40°)  
                        \_\_\_\_\_ Flat (0°- 15°)

Land Use: \_\_\_\_\_ Urban    \_\_\_\_\_ Suburban    \_\_\_\_\_ Rural    \_\_\_\_\_ Mountains/Wilderness \_\_\_\_\_ Dense Brush  
                        \_\_\_\_\_ Agriculture

Water Environment: \_\_\_\_\_ Stream \_\_\_\_\_ Lake \_\_\_\_\_ Pond \_\_\_\_\_ Dam \_\_\_\_\_ Ocean \_\_\_\_\_ Wetland

**Hazards:**

Wires                                       Aircraft                                       Buildings  
 Towers                                       Construction Equipment                                       Wildlife (SNAKES)

Radio contact established with IC (if not, explain why in scene size up)

Ground Contact: \_\_\_\_\_

Radio Frequency: \_\_\_\_\_

Scene Size-Up: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Rescue Information:**

Type of Rescue:

Hoist                                          Short Haul Hoist      
Height: \_\_\_\_\_ Feet                                      Height: \_\_\_\_\_ Feet

Number of evolutions: \_\_\_\_\_

Description: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Survivor Information:**

Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female
Name: _____	DOB: _____	<input type="checkbox"/> Male	<input type="checkbox"/> Female

Drop-off Location: \_\_\_\_\_

**Equipment Information:**

Equipment Used:

- Cinch Collar
- STROP
- Short Haul
- LSC
- CMC Lifesaver Harness
- Other: i.e. Multi-Survivor Rig, Jungle Penetrator
- LSC Water Litter
- Bauman Bag
- Petzl Hasty Harness
- Rescue Basket
- Breaching equipment

Equipment Status:

- Inspected, cleaned, inventoried, returned to service
- Damaged (provide explanation)

Comments:

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## SECTION 3 Deployment & Personal Gear Bag List

### PA-HART TRAINING AND DEPLOYMENT UNIFORM:

#### UNIFORM

1. Flight Suit (Black) or Black BDU Pants with PA-HART Shirt (Tan)
2. Leather Flight Boots (Black)
3. Agency ID including Dog tags

<b>Personal Equipment</b>	<b>Quantity</b>
<b>Warm Weather:</b>	
<i>Below items must be contained in approved bag comparable in size to a USFS Black Bag (7500 cu in and 45 lbs)</i>	
Nomex flight suit, black	1
Gloves, rescue, pair	1
Pants, BDU, Tan/Black	2
Shirt, Black/Tan	2
Shorts, Black	2
Boots, all leather, black, Steel-toed	1
Belt, Black	1
Hat, Departmental	1
Socks, pair	4
Underwear	4
Towel, bath	1
Toiletry kit	1
Eye glasses, prescription, spare pair (if required)	1
Shower shoes, pair	1
Sleeping bag	1
Pillow (must fit in bag)	1
<b>Cold weather</b>	
Coat	1
Pants	1
Gloves	1
Long underwear	1
Cold weather insulating hat	1
Socks, wool or other cold weather	4
<b>Water Rescue PPE and equipment</b>	
<i>Below items must be contained in approved bag comparable in size to a USFS Red Bag or LSC dive bag (7500 cu in and 45 lbs)</i>	
Type V PFD, Black	1
Gloves, appropriate for use in water (pair)	2
Water rescue work boots, or equivalent (pair)	1
Helmet, water rescue type, PT - helmet	1
Helmet light, water proof	1
Dive Mask	1
Snorkel, no moving parts	1

Chemical light -bar (optional)	1
Fins, pair, black (pair)	1
Water rescue knife	1
Whistle	1
Carabiners, locking, steel	6
Emergency air, HEEDS	1
Medical Kit as approved by sponsoring agency	
Ear Plugs (pair)	
<i>Below items must be contained in approved bag (2500 cu in and 20 lbs)</i>	
Flashlight, battery operated, water proof	1
Flashlight bulbs (Spare bulbs can be substituted by 2nd flashlight)	2
Batteries, flashlight, ends taped	2
Gloves, work, leather or Kevlar, pair	2
Gloves, medical, non-latex pair	2
Safety glasses or goggles, ANSI (must be restrained)	2
Radio, portable, State 800Mhz w/charger Communication Headset	1
Handheld GPS (with batteries)	1
Compass	1
Waterproof map bag	1
Lip balm, Sunscreen, Insect Repellant	1
Water bottle or canteen	2
Personal hydration system	1
Knife, pocket or multitool	1
Sanitizer, hand (enough for 5 days)	

## **AIRCREW DEPLOYMENT UNIFORM:**

1. Army Aviation Combat Uniform or Approved Agency Flight Suit
2. Approved for Flight Boots
3. Military/Agency ID Card
4. ID Tags
5. Cotton T-shirt
6. Socks (cotton or wool)
7. PA-HART cap
8. Belt
9. Air Warrior Survival Vest with attached PFD (“horse collar”) and SEA MKII (HEED Bottle) (PANG)
10. Agency Approved Flight Vest
11. HGU-56 Flight Helmet (PANG) or Approved Agency Flight Helmet
12. Nomex Flight Gloves
13. Nomex Cold Weather Gloves (Cold Weather)
14. Nomex Fleece (Cold Weather)
15. Nomex Long Underwear (Cold Weather)

**HELMET BAG:** As Issued

### **CONTENTS OF HELMET BAG:**

PAANG to provide

## **SECTION 4 PA-HART Personal Protective Equipment (PPE)**

PA-HART personnel utilize a variety of equipment to meet mission profiles. That equipment has specific inspection, cleaning, and care standards.

Routine inspection of gear and equipment is essential to detect malfunction or defects that may result from regular use and wear. Team members have the sole responsibility to keep their issued gear and program equipment up to standard and report defects when discovered. Where appropriate, care and maintenance information has been provided in this section.

Any time there is damage noted in any piece of equipment, that damage should be reported to the PA-HART Logistics Unit and replacements obtained when necessary.

### **PA-HART PPE**

- Gentex HGU-56 Helicopter Helmet
- PT Bravo Helmet
- Skull Cap
- Nomex IIIA Long Sleeve Flight Suit
- Mustang Survival Dry Suit
- LSC Tri-SAR Harness
- Type V PFD
- Mask and J tube snorkel
- Leather Boots
- Water Boots
- SAR Fins
- Survival Strobe
- HEED Bottle

## Gentex HGU-56 Helicopter Helmet



<b>Description / Specification</b>
<p>Head impact protection is absolutely crucial during any helicopter flight operation. The Gentex HGU-56 Helicopter Helmet provides superior user protection in a lightweight graphite and Spectra® composite shell. It adds a dual visor function with molded ear cups for enhanced hearing protection and crew communications.</p> <ul style="list-style-type: none"><li>• Weight 2.8-3.2 lbs.</li><li>• Sound attenuation 21 db at 1,000 Hz, 37 dB at 4,000 Hz</li><li>• Visor lens is made of impact resistant polycarbonate with added UV protection</li></ul>
<b>Indications</b>
<ul style="list-style-type: none"><li>• General flight operations</li><li>• Rescue operations as outlined in SOG</li></ul>
<b>Care and Inspection</b>
<p>Inspections: Visual inspection prior to use</p> <ul style="list-style-type: none"><li>• General cleaning of the shell should be done with soft non-abrasive paper or microfiber towels and water, or light general purpose cleaner</li><li>• General cleaning of the visors shall be done with soft non-abrasive paper or microfiber towels and aircraft wind screen approved cleaner</li><li>• Maintenance of helmet functions and/or communications parts should only be accomplished by trained and certified personnel</li><li>• Routine washing of the head liner with water with light detergent will extend the life and use of the interior of the helmet. The liner should be patted flat with a towel and placed flat for drying</li></ul> <p>NOTE: The head liner shall not be wrung out or twisted during washing</p>
<b>Considerations</b>
<p>NOTE: During rescue operations, the user shall use the clear visor to enhance visibility</p>



## NOMEX® IIIA

Description / Specification
NOMEX® IIIA is a blend of NOMEX® meta-aramid and KEVLAR® para-aramid fiber. It is inherently resistant to flames, dissipates static, and is resistant to many chemicals including organics, acids, and bases. The fire-resistance does not wash out during laundering. NOMEX® IIIA is widely used for clothing for the military, fire fighters, auto racers and industrial workers. The 6.5-ounce fabric offers a crisp appearance and is longer wearing. We make our uniforms with fabric, zippers, and thread all made from NOMEX®.
Indications
<ul style="list-style-type: none"><li>• General flight operations</li><li>• Rescue operations as outlined in SOG</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use</li><li>• NOMEX® can be laundered or dry cleaned. When laundering, the front main zipper should be completely closed. Detergents should not contain bleach or bleaching products.</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• Synthetic fabrics under flight gear may cause severe burns during a fire. Underwear and socks shall be either 100% cotton or Nomex blend.</li><li>• Socks may also be at least 80% cotton or at least 80% wool.</li></ul>
Considerations
NOTE: During general flight or rescue operations, the sleeves on flight suit shall be rolled down to full length of the sleeve to enhance protection.

## Mustang Survival Dry Suit

Description / Specification
The dry suit is for swift water and still water missions. It is specifically designed for water operations such as vertical insertion and swift water rescue. It is constructed with an abrasion resistant, durable nylon with strategically reinforced leg, arm and seat patches. It also has cushioned patches on the knees and elbows to add additional protection and comfort during tactical maneuvers. The neck pad protects the adjustable neck seal and reduces chafing and discomfort. The adjustable neck seal and neoprene wrist seals provide a comfortable fit for surface or over water operations. During water entry, the adjustable neck seal can be drawn tight to prevent water entering the suit. Thermal performance of the dry suit is dependent on the type of thickness of the undergarment worn.
Indications
<ul style="list-style-type: none"><li>• Rescue operations that involve direct contact with water as outlined in SOG</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use</li><li>• Cleaning your dry suit should be done with mild soap, a soft brush and large amounts of water. Clean both the outside then inside of the dry suit. After thorough rinsing, hang the dry suit inside out until completely dry. Then hang the suit to allow the outside of the suit to dry. A fan will greatly reduce drying times. Be sure the dry suit is completely dry before storing</li><li>• The latex seals of the dry suit should be treated with 303 Protectant</li><li>• Neoprene seals of the dry suit should be dusted with talc</li><li>• The zippers should be cleaned and lubricated with paraffin, beeswax or dry suit zip-wax</li><li>• Relief zippers should be stored closed</li><li>• The main entry zipper should be stored unzipped with the first two inches zipped closed</li><li>• Dry suits should be stored loosely rolled in a bag that protects it from abrasion/puncture/UV and exhaust fumes</li><li>• Do not store the dry suit in a plastic bag.</li><li>• To store the dry suit, place it face down and fold the legs and arms in. Roll the dry suit once above the relief zipper and then a second time. This allows for a gradual bend for the zipper</li></ul>
Considerations

## Type V • PFD

Description / Specification
The Type V PFD features: <ul style="list-style-type: none"><li>• Inherently buoyant PFD providing minimum 22.5 lbs. of buoyancy.</li><li>• Integrated blow-out belt.</li><li>• Accessory pockets designed for radios and gear.</li></ul>
Indications
<ul style="list-style-type: none"><li>• Rescue operations that involve direct contact with water as outlined in SOG</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use and periodic CO2 inflation test o Cleaning: Fresh water rinse with mild detergent as needed</li></ul>
Considerations
The complete PFD includes the following standard issue equipment: <ul style="list-style-type: none"><li>• Emergency strobe</li><li>• Water rescue knife</li><li>• Whistle</li><li>• 2 Locking Aluminum Carabineers</li></ul>

## Helicopter Emergency Egress Device (HEED)

Description / Specification
The Helicopter Emergency Egress Device (HEED) is designed to enhance the survivability of crewmembers in the event of a water landing. The bottle provides approximately 30 breaths to give the user the needed time to exit a submerged aircraft. It may be refilled from a scuba tank and has an external PSI gauge
Indications
<ul style="list-style-type: none"><li>• Emergency Egress</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use and periodic cylinder test</li></ul>
Procedures
<ul style="list-style-type: none"><li>• Refer to Helicopter Emergency Escape Device section in Training Manual</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• Intended as an emergency device to assist egress from submerged aircraft; training required</li><li>• Not to be used by PA-HART for under water searches</li></ul>
Considerations
<ul style="list-style-type: none"><li>• The HEED does not negate the need for routine practice and discussion of emergency water egress</li></ul>

## TRI-SAR Helicopter Rescue Harness

Description / Specification
<p>The TRI-SAR is LSC's professional grade helicopter hoistable rescue harness with dual recovery capability. Sized by Height: S (61-65") M (64-69") L (68-73") XL (72-78") XX (74-80").</p> <ul style="list-style-type: none"><li>• Integrated flotation vest (inflated manually with CO2 or orally with air) features a low profile, easy to swim in design, with user variable buoyancy up to 35 lbs.</li><li>• This full body harness is constructed primarily of MIL-SPEC Types 10 and 13 nylon webbing, and features quick adjusting stainless steel hardware.</li></ul>
Indications
<ul style="list-style-type: none"><li>• Approved for use with hoist or Short-Haul.</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use</li><li>• Cleaning: Fresh water rinse with mild detergent after each use</li></ul>
Procedures
<ul style="list-style-type: none"><li>• Don harness and secure all buckles.</li><li>• Use integrated flotation device as required.</li><li>• Ensure manual inflation device is stowed and operating properly.</li><li>• Ensure that the center attachment point is free and clear and not obstructed.</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• The equipment attachment point is not to be used as the PA-HART or survivor lifting point.</li><li>• In order for the flotation device to automatically inflate upon activation, the CO2 cartridge must be charged, properly installed, and seated.</li></ul>
Considerations
<ul style="list-style-type: none"><li>• PA-HART must ensure that he is properly secured in the harness.</li><li>• PA-HART must ensure that he has no loose and improperly secured equipment attached to the harness.</li><li>• PA-HART must ensure that they have secured the locking gate mechanism prior to signaling for a hoist.</li></ul>

## PA-HART Personal Protective Equipment (PPE)

### Land Based Operations

#### Equipment List:

- HGU-56 Flight Helmet/PT Helmet
- Black Nomex Flight Suit / Mustang Dry Suit
- Nomex Flight Gloves or all leather gloves
- Black Leather Boots
- Tru-Link ICS / State 800 Radio System
- OTTO Tactical 3 Comm/Peltor/TEA
- LSC TRI-SAR Harness
- Stream Light Compact 2



### Water Based Operations – Static Water / Wide Area Flooding



#### Equipment List:

- PT Helmet
- Mustang Dry Suit
- Water Rescue Gloves
- Mask and Snorkel
- LSC TRI-SAR Harness/Unarmed
- Type V buoyant PFD
- River Rescue Knife/Rescue Me Tool
- Whistle
- 2 Locking Carabineers
- Strobe Light
- Water Rescue Boots
- Fins
- OTTO Tactical 3 Comm/Peltor/TEA
- Stream Light Compact 2

## Water Based Operations – Swift Water

### Equipment List:

- PT Helmet
- Mustang Dry Suit
- Water Rescue Gloves
- Mask and Snorkel
- LSC TRI-SAR Harness/Unarmed
- Type V buoyant PFD
- River Rescue Knife/Rescue Me Tool
- Whistle
- 2 Locking Carabineers
- Strobe Light
- Water Rescue Boots
- Fins
- OTTO Tactical 3 Comm/Peltor/TEA
- Stream Light Compact 2



## SECTION 5 Rescue Equipment

Equipment carried by PA-HART personnel during rescue operations has been approved and standardized by the PFBC Training Program and PANG. This equipment has demonstrated high reliability and safety when properly utilized in the helicopter rescue environment. Equipment not listed in the Training Manual or SOPs must have joint agency approval prior to use.

**CAUTION:** Crewmembers shall not attempt to make any repairs or modifications to life safety equipment. Defects should be reported to their supervisor and equipment replaced until proper repairs/inspections can be completed.

### General Equipment

#### Part # Biner12 (OP12S58LNFP)

Description / Specification
Omega Pacific Large D shape for great handling, huge gate opening and massive strength! At a rated strength of 16,186 lbf. (72kN), it's one of the strongest carabiners in the world! Heat-treated, half-load tested over 8000 lbf. (35kN) and built to exacting standards, the ½" Large D is one very fine steel carabiner. <ul style="list-style-type: none"><li>• Screw Gate Opening</li><li>• Meets current NFPA 1983 construction standards and is labeled as such.</li><li>• UL Classification G</li></ul>
Indications
<ul style="list-style-type: none"><li>• Short haul line attachment points</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use and after each use</li><li>• Cleaning: Fresh water rinse</li></ul>
Procedures
<ul style="list-style-type: none"><li>• Refer to Rescue Operations Section of the Training Manual</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• Be aware of load limitations, manner used, and proper technique</li><li>• Do not over load a Carabiner Do not gate load carabiner</li><li>• Carabiners can fail under improper use conditions such as cross loading, gate open loading, loading other than major axis, applying a sheer or torsion load to the carabiner</li></ul>
Considerations
<ul style="list-style-type: none"><li>• Steel Carabiners will be used for multiple person loads</li></ul>





**Part # Biner42 (OPGF36QNFP)**

Description / Specification
<p>Omega Pacific G-First carabiner is built as the new workhorse for Fire, Industrial, Rescue, Safety and Tactical industries, the G-FIRST is the world’s lightest carabiner to earn the full-strength, “General” rating from the National Fire Protection Association Rated to 40kN, this ‘biner weighs only 4.6 oz - almost 10% lighter than other G-Rated aluminum ‘biners and less than half the weight of steel carabiners. G-FIRST is ISO Cold Forged from aircraft-quality, heat-treated aluminum and feature a KeyLock Nose to prevent snagging on webbing, ropes and harnesses!</p> <ul style="list-style-type: none"> <li>• Auto Locking Gate</li> <li>• Meets current NFPA 1983 construction standards and is labeled as such.</li> <li>• UL Classification G</li> </ul>
Indications
<ul style="list-style-type: none"> <li>• General rescue use</li> </ul>
Care and Inspection
<ul style="list-style-type: none"> <li>• Inspections: Visual inspection prior to use and after each use</li> <li>• Cleaning: Fresh water rinse</li> </ul>
Procedures
<ul style="list-style-type: none"> <li>• To be used by PA-HART for tethering to the aircraft.</li> </ul>
Cautions / Warnings
<ul style="list-style-type: none"> <li>• Be aware of load limitations, manner used, and proper technique. Do not over load a carabineer Do not gate load carabineer</li> <li>• Carabineers can fail under improper use conditions such as cross loading, gate open loading, loading other than major axis, applying a sheer or torsion load to the carabineer</li> </ul>
Considerations
<ul style="list-style-type: none"> <li>• Aluminum carabineers are for single person loads only</li> </ul>



**Part # Biner37 (OPGF6LNFP)**

<b>Description / Specification</b>
<p>Omega Pacific G-First carabiner is built as the new workhorse for Fire, Industrial, Rescue, Safety and Tactical industries, the G-FIRST is the world’s lightest carabiner to earn the full-strength, “General” rating from the National Fire Protection Association Rated to 40kN, this ‘biner weighs only 4.6 oz - almost 10% lighter than other G-Rated aluminum ‘biners and less than half the weight of steel carabiners. G-FIRST is ISO Cold Forged from aircraft-quality, heat-treated aluminum and feature a KeyLock Nose to prevent snagging on webbing, ropes and harnesses!</p> <ul style="list-style-type: none"> <li>• Screw Gate Opening</li> <li>• Meets current NFPA 1983 construction standards and is labeled as such.</li> <li>• UL Classification G</li> </ul>
<b>Indications</b>
<ul style="list-style-type: none"> <li>• General rescue use and belay of single person loads</li> </ul>
<b>Care and Inspection</b>
<ul style="list-style-type: none"> <li>• Inspections: Visual inspection prior to use and after each use</li> <li>• Cleaning: Fresh water rinse</li> </ul>
<b>Procedures</b>
<ul style="list-style-type: none"> <li>• To be used by PA-HART for general rescue use and as a backup or spare</li> </ul>
<b>Cautions / Warnings</b>
<ul style="list-style-type: none"> <li>• Be aware of load limitations, manner used, and proper technique. Do not over load a carabineer Do not gate load</li> <li>• Carabineers can fail under improper use conditions such as cross loading, gate open loading, loading other than major axis, applying a sheer or torsion load to the carabineer</li> </ul>
<b>Considerations</b>
<ul style="list-style-type: none"> <li>• Aluminum carabineers are for single person loads only</li> </ul>



## Extraction Litters

PA-HART may utilize extraction litters during rescue operations of survivors who have sustained serious or critical injuries. Currently there are three approved extraction litters for rescue operations.

Description / Specification
The Bauman Bag provides: <ul style="list-style-type: none"><li>• A single-point suspension system for lifting a survivor during hoist or short-haul extraction.</li><li>• The hoist model has adjustable length straps allowing the bag to be configured to our aircraft.</li><li>• Bags can be used with backboards, litters, or by itself.</li><li>• Approximate weight 13 lbs.</li><li>• The bag includes reflective tape and a pocket for a chemical light for low light and night operations.</li></ul>
Indications
<ul style="list-style-type: none"><li>• The Bauman Bag is approved for use with the short haul or hoist.</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Every 30 days and visual inspection prior to use.</li><li>• Cleaning: Fresh water rinse with mild detergent after as needed.</li></ul>
Procedures
<ul style="list-style-type: none"><li>• The PA-HART should lift the survivor into the Bauman Bag and attach the interior securing straps.</li><li>• The short-haul line or hoist hook should be attached to the Bauman Bag lifting attachment point.</li><li>• The PA-HART should attach themselves so that they are level with the survivor.</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• Rotation from down wash may be arrested by increased airspeed.</li></ul>
Considerations
<ul style="list-style-type: none"><li>• Tag lines may be used by PA-HART or appropriately briefed ground personnel.</li></ul>

## Bauman Bag

The Bauman Bag is a nylon extraction sleeve that will accommodate a long-spine board and is used for short hauling or hoisting survivors who are unable to tolerate an upright extraction position or collar. The front consists of a combination of Velcro and fast clip buckles providing easy access to the survivor compartment. Securing straps are located inside of the device for securing the spine board and survivor to the interior of the bag. The lifting points are external and consist of four adjustable straps on each side that terminate on a tri-link.



**CAUTION:** The PA-HART should verify all connections are complete and positioned correctly (gates closed, no cross-loading present, survivor is not negatively affected by the device, etc.) before signaling “ready for pickup”.

Description / Specification
<p>The Collapsible Rescue Basket combines the compact stow ability of the rescue net systems with the ruggedness, rigidity and safety of the field proven tubular frame rescue basket. Additionally the basket features a more open internal volume.</p> <ul style="list-style-type: none"> <li>• Dimensions: 25" W x 44½" L.</li> <li>• Height: 41" (9½" stowed).</li> <li>• Weight: 39 lbs.</li> <li>• Weight Limit: 600 lbs. Working load limit</li> </ul>
Indications
<ul style="list-style-type: none"> <li>• The LSC Rescue basket is to be used for the extraction of survivors who are able to assist in their own extraction. The basket is intended for a single survivor that will be hoisted into the aircraft unattended</li> <li>• Approved for hoist only</li> </ul>
Care and Inspection
<ul style="list-style-type: none"> <li>• Inspections: Every 30 days and visual inspection prior to use o Cleaning: Fresh water rinse with Mild detergent after each use</li> </ul>
Procedures
<ul style="list-style-type: none"> <li>• The bail assemblies fold into the rescue basket, and each side collapses for compact stowage.</li> <li>• The basket is erected by lifting the bails and top rail assembly up, and then rotating the side supports down.</li> <li>• Supports are secured in place by simple spring locks, and provide a rigid structure that aids handling and entry into the basket</li> </ul>
Cautions / Warnings
<ul style="list-style-type: none"> <li>• PA-HART <b>MUST</b> make sure that the survivor is able to follow commands and assist in their rescue when making the decision to utilize this rescue basket</li> </ul>
Considerations
<ul style="list-style-type: none"> <li>• This device is best suited for still water and rooftop extractions</li> <li>• Tag lines may be utilized as outlined in the SOG</li> </ul>



The rescue basket is a titanium frame basket with integrated flotation to be used during hoist extraction. Its collapsible versatility allows it to be easily transported in the aircraft during wide area flood operations or other still or slow moving water events. The rescue basket is designed to be an unattended extraction device.

**CAUTION:** The PA-HART should inform the survivor to keep their extremities inside the frame of the basket during extraction and at no time should they reach out toward the aircraft or Crew Chief.

<b>Description / Specification</b>
The Quick Strop is the primary hoist extraction device. Constructed of MIL-SPEC webbing and stainless steel hardware, the Quick Strop provides a quick, safe means of hoisting uninjured personnel. The Quick Strop can be placed over the head and under the arms of the survivor in one quick motion.
<b>Indications</b>
<ul style="list-style-type: none"> <li>• The LSC Quick Strop is the rescue device of choice when utilizing the hoist o May be used for both land and water applications with an uninjured survivor o Approved for use with the rescue hoist ONLY!!!</li> </ul>
<ul style="list-style-type: none"> <li>• Inspections: Visual inspection prior and post use.</li> <li>• Cleaning: Fresh water rinse with mild detergent after each use.</li> </ul>
<b>Procedures</b>
<ul style="list-style-type: none"> <li>• Appropriately place the strop on the survivor.</li> <li>• To prevent the survivor from slipping out, the groin strap should be attached to the retention hardware at the survivor’s chest.</li> </ul>
<b>Cautions / Warnings</b>
<ul style="list-style-type: none"> <li>• The quick strop may limit the expansion of the survivor’s chest causing or increasing respiratory distress.</li> <li>• Should be used with caution in survivors with potential hypothermia</li> <li>• This device is not to be used when conducting short-haul operations.</li> </ul>
<b>Considerations</b>
<ul style="list-style-type: none"> <li>• PA-HART member must ensure that survivors are adequately secured in the device.</li> <li>• Should normally be attended by qualified PA-HART member.</li> </ul>



The **STROP** is a quick application extraction collar that is designed to fit around the circumference of the chest of most survivors, excluding small children. The STROP is not designed to be utilized on survivors who have sustained potential significant spinal injury unless the situation does not allow time to appropriately secure the survivor’s spine in a more appropriate device. The device is placed over the survivors head and shoulders and around the survivor’s chest with the pad centered in the mid-thoracic spine area, and the lifting straps coming together at the center of the chest. The sliding buckle is placed as close to the survivor’s chest as possible. The groin strap is brought from the back pad, under the crotch and secured to the sliding buckle. It is then tensioned to prevent shifting during extraction. Survivors should be instructed to keep their hands below shoulder level during extraction.

**WARNING:** The quick strop is only for use during hoist operations.

**CAUTION:** The PA-HART must confirm that both lifting straps are through the sliding buckle and secure to the hook/ carabineer prior to signaling “ready for extraction”.

## Cinch Collar

Description / Specification
Used by helicopter rescue agencies for years as a primary extraction device, the Cinch Collar is a proven rescue tool for short haul operations. The Cinch Collar can be placed over the head and under the arms of the survivor in one quick motion. To prevent the survivor from slipping out the survivor's weight releases the connector, allowing the collar to "cinch" around the survivor during extraction. <ul style="list-style-type: none"><li>• Inside diameter when open is 20 inches.</li></ul>
Indications
<ul style="list-style-type: none"><li>• Approved for use with the short haul only</li></ul>
Care and Inspection
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use</li><li>• Cleaning: Fresh water rinse with mild detergent after each use</li></ul>
Procedures
<ul style="list-style-type: none"><li>• Appropriately place the collar on the survivor</li><li>• Ensure the collar is centered with the lift point coming from the survivor's mid-chest</li></ul>
Cautions / Warnings
<ul style="list-style-type: none"><li>• The cinch collar may limit the expansion of the survivor's chest causing or increasing respiratory distress</li><li>• Should be used with caution in survivors with potential hypothermia</li><li>• This device is not to be used when conducting rescue hoist operations.</li></ul>
Considerations
<ul style="list-style-type: none"><li>• PA-HART must ensure that survivors are adequately secured in the device</li><li>• Should normally be attended by qualified PA-HART</li></ul>

The Cinch Collar is a quick application extraction collar that is designed to fit around the circumference of the chest of most survivors, excluding small children. The cinch collar is not designed to be utilized on survivors who have sustained potential significant spinal injury unless the situation does not allow time to appropriately secure the survivor's spine in a more appropriate device. The device is placed over the survivors head and shoulders then around the survivor's chest with the pad centered in the mid-thoracic spine area. The lifting strap comes together from the center of the chest and the quick fit release buckle should be placed as close to the center of the survivor's chest as possible. Survivors should be instructed to keep their hands below shoulder level during extraction.



**WARNING:** The cinch collar is to be used during lateral extractions only.

**CAUTION:** The PA-HART must confirm that the lifting strap is secured to the carabineer prior to signaling "ready for extraction".

## CMC Rescue Short Haul Line

<b>Description / Specification</b>
The CMC Rescue Short Haul Line's synthetic fibers deliver an increased strength to weight ratio compared to metallic cable or conventional kern mantle rope. Unlike metallic cables, the Short Haul line is non-conductive and can be stuffed and stored in a rope bag without risk of kinking or otherwise damaging the rope. These characteristics combined with low volume storage, a high visibility sheath, and extremely low stretch (less than 0.5% at 600 lbs.); make the CMC Short Haul Line ideal for all types of short haul operations. The line comes with 1.5 inch diameter stainless steel thimbles spliced at both ends. It has a tensile strength of 14,000 lbs.
<b>Indications</b>
<ul style="list-style-type: none"><li>• Short Haul Operations</li></ul>
<b>Care and Inspection</b>
<ul style="list-style-type: none"><li>• The rope should be inspected after each use and at monthly intervals.</li><li>• Record the date of the inspection and the results in the equipment log.</li><li>• When inspecting the rope:<ul style="list-style-type: none"><li>• Check the rope for cuts, worn or frayed areas, broken fibers, soft or hard spots, discoloration, or melted fibers</li><li>• Check the stitching for pulled threads, abrasion, or breaks.</li><li>• Check the hardware for damage, sharp edges, and improper operation.</li></ul></li><li>• If any of the above are noted, or if the rope has been subjected to shock loads, fall loads, or abuse other than normal use, remove the rope from service and destroy it.</li><li>• If there is any doubt about the serviceability of the rope, remove the rope from service and destroy it.</li><li>• Cleaning: Fresh water rinse with mild detergent after as needed, do not dry in direct sunlight.</li></ul>
<b>Procedures</b>
<ul style="list-style-type: none"><li>• Refer to Rescue Operations Section of Training Manual</li></ul>
<b>Cautions / Warnings</b>
<ul style="list-style-type: none"><li>• Tag lines are contraindicated during Short Haul operations</li></ul>
<b>Considerations</b>



## Spider Rig

Description / Specification
The Spider Rig is a custom designed device to be used during short haul operations in circumstances that involve the pressing need to move multiple persons from one area to another. It consists of a steel ring with six attachment points that terminates with auto-locking aluminum carabineers. The attachment points may be secured to multiple Petzl Hasty Harnesses or seat harnesses depending on the situation.
Indications
<ul style="list-style-type: none"><li>• Approved for use with the short haul only.</li></ul>
<ul style="list-style-type: none"><li>• Inspections: Visual inspection prior to use and once per year for defects.</li><li>• Cleaning: Fresh water rinse with mild detergent as needed.</li></ul>
Procedures
Cautios / Warnings
Considerations

These are typically be located in the Helicopter Rescue Equipment Bag. In situations where there are large numbers of survivors that must be moved, such as high rise structure fires, the crew may request multiple kits at both the pick-up and drop-off points to expedite turnaround time. Each complete kit contains:

- One Spider Rig
- 6 LSC Harnesses

This equipment is not standard during aircraft configuration for rescue missions, and the crew will have to determine based on the information available if the equipment may be necessary to complete the mission.



## Aircraft Rescue Equipment Bag Inventory – UH-60

### Evac Pack Inventory



- |    |                   |       |
|----|-------------------|-------|
| 1. | 300' 8mm tag line | Qty 1 |
| 2. | Victim Harness    | Qty 2 |
| 3. | Steel Carabineers | Qty 6 |
| 4. | Bull Ring         | Qty 1 |
| 5. | Pickoff Straps    | Qty 2 |
| 6. | 1" PMP (Pulleys)  | Qty 3 |



- |    |                |       |
|----|----------------|-------|
| 1. | 18' 1" Webbing | Qty 1 |
| 2. | Prussiks       | Qty 2 |

## SECTION 6 Aircraft Orientation/UH-60

### General Aircraft Characteristics:

- Crew: 2 Pilots, 2 Crew Chiefs  
Capacity: 2,640 lb. of cargo internally, including 11 personnel or 6 stretchers, or 8,000 lb. (UH-60A) or 9,000 lb. (UH-60L) of cargo externally
- Length: 64 ft 10 in (19.76 m)
- Fuselage width: 7 ft 9 in (2.36 m)
- Rotor diameter: 53 ft 8 in (16.36 m)
- Height: 16 ft 10 in (5.13 m)
- Disc area: 2,260 ft<sup>2</sup> (210 m<sup>2</sup>)
- Empty weight: 10,624 lb. (4,819 kg)
- Loaded weight: 22,000 lb. (9,980 kg)
- Max takeoff weight: 23,500 lb. (10,660 kg)
- Powerplant (UH-60): 2× General Electric T700-GE-701C turboshaft, 1,890 hp (1,410 kW) each

## General Aircraft Performance

- Cruise speed: 135 knots (max range)
- Range: 270 nm (non-aux fuel) / 450 nm (with aux fuel)
- Service ceiling: 19,000 ft

## Aircraft Exterior Orientation

### *Aircraft Ground Operations & Rotor System*

- Danger areas- main/tail rotors
- Use of rotor brake
- Approaching aircraft with rotors turning / engines off
- Hazards associated with the tail rotor
  - Remain clear of the tail rotor at all times when the engines are engaged
  - The Crew Chief and PA-HART to help keep other scene personnel clear of the tail rotor until the aircraft had been shut down
  - Approach the aircraft from the 9 o'clock and 3 o'clock positions
- Hazards associated with the main rotor
  - Receive an acknowledgement from the pilot in command before entering or leaving the rotor arc
  - Leaving the rotor arc during engagement/ disengagement
  - Leaving the rotor arc following a slope landing

### **WARNING: NEVER APPROACH OR DEPART THE AIRCRAFT ON THE UPSLOPE SIDE WHILE THE ROTORS ARE TURNING**

- Hazards associated with loading survivors while the rotors are turning
  - Crew to keep the pilot in command informed as to what is happening at all times during hot loading of survivors and rescuers
  - Crew to maintain strict supervision of the hot loading process, ensuring ground unit personnel do not endanger themselves or the survivor
  - Crew to ensure that nothing higher than their head is brought into the rotor arc while the rotors are turning
  - Crew to ensure that all loose objects are removed and secured prior to approaching the aircraft on a hot load evolution

### *Loading aircraft-*

- Understand and demonstrate competency in:
  - Cold loads
  - Hot loads
  - Use of ICS system during loading
  - Managing / Marshalling personnel to and from aircraft
  - Vehicle operations around aircraft

## Aircraft Interior Orientation

### *Emergency procedures-*

Understand and demonstrate competency in:

- Locations, functions and use of emergency exits
- Emergency engine shut down procedures
- Location, functions and use of Emergency Locator Transmitter (ELT)
- Locations, functions and use of fire extinguishers
- Emergency evacuation of flight crew, passengers or survivors



### ***Seats-***

Understands and demonstrates competency in:

- Locations, functions and use of pilot and crewmember seats and restraint systems
- Location and position of seats during takeoffs and landings
- Installation and removal of passenger seats

### ***Stowing Equipment-***

Understand and discuss:

- Restrictions of securing personnel and gear
- Location and function of storage compartments

### ***Before and After Takeoff Checklist Requirements***

Understand and discuss:

- Safety belts and shoulder harness fastening

### ***Electrical outlets-***

Understand and demonstrate competency in:

- Locations and functions of electrical outlets
- Locations and functions of on-board electrical systems

### ***Lights-***

Understand and demonstrate competency in:

- Locations, functions and uses of rear interior lights
- Use of white / red / green light (night ops)
- Use / restrictions for use of personal lighting

### ***Aviation Avionics-***

Understand and demonstrate competency in:

- Location, function and use of ICS systems/TRULINK
- Function of PA-HART radio communications
- Location, function and use of survivor communications system
- GPS
- FLIR
- Camera

### ***Medical Operations-***

Understand and demonstrate competency in:

- PA-HART Medical Operating Guidelines
- Various survivor configurations

### ***Responsibility and Authority of the Pilot-in-Command***

Understand and discuss:

- PIC Authority

### ***Briefing Requirements***

Understand and discuss:

- Mission Brief
- Aircrew Brief
- Rescue Brief
- Passenger Brief
- After Action Report

### ***Appropriate Cockpit Communications***

Understand and discuss:

- Critical phase of flight as follows:
- All ground operations involving taxi, takeoff and landing
- Crew Coordination Fundamentals

### ***Reporting of Traffic by PA-HART Personnel***

Understand and discuss:

- Procedures for reporting traffic to the crew
- Traffic that may be a factor
- Reporting traffic using clock positions and altitudes relative to your own aircraft

### ***Discuss Landing Zone / Rescue Site Coordination / Responsibilities***

Understand and discuss:

- Responsibility of PA-HART to help clear the aircraft into and out of landing zones (LZ's) and rescue sites
- Restrictions / limitations for opening aircraft doors in flight

## **SECTION 7 Configuration and Rigging/UH-60**

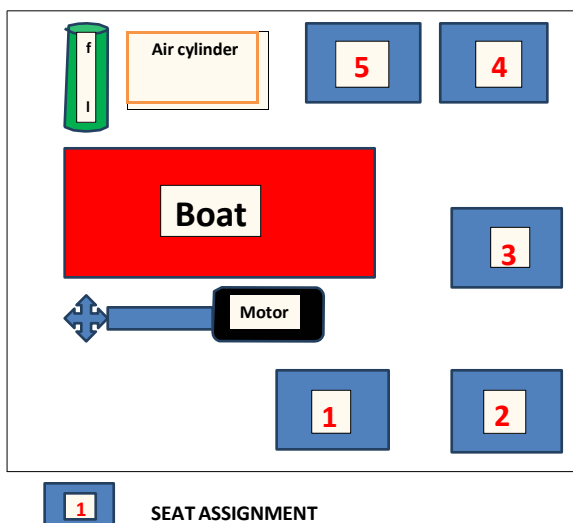
This is the standard configuration of the aircraft when conducting rescue operations. The PA-HART will assist flight crews as needed and be prepared to deviate as requested by flight crew and or as the mission dictates.

**NOTE:** Any additional medical / rescue equipment should be stored in an area that is easily accessible so that any rescued survivor can be given immediate medical attention in accordance with the PA-HART level of certification.

**CAUTION:** All PA-HART and survivors will remain either seated, seat belted, or tethered at all times. Upon completion of rescue operations, the aircraft pilot-in-command will determine seating priorities based on the number of survivors and seats available.

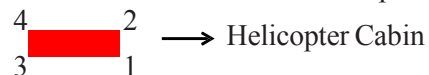
### **UH-60 Blackhawk SAR Configuration**

#### **Equipment and Seating Layout**



#### **Loading Sequence:**

1. Seat 5 - Load Fuel Bladder and Air Cylinder Box, then enters helicopter
2. Seats 1, 2, 3, 4 – Load Boat, 1 and 2 enter helicopter
3. Seats 3 and 4 - Load Motor and enter helicopter



#### **Unloading Sequence:**

1. Seats 3 & 4 – Exit, proceed around nose, with right hand in contact w/aircraft, and remove motor. Return to aircraft and assist with boat removal. Same positions as above.
2. Seats 1 & 2 – Assist with boat removal, same positions as above.
3. Seat 5 – Remove fuel and air cylinder box.

This is the standard configuration utilized when the internal auxiliary fuel tank is installed.

While enroute to the rescue scene, the PA-HART will remain seated and belted. Once rescue operations commence, the PA-HART Rescue Team Leader will use a tether so that he can assist with on scene mission analysis, development of the rescue plan, and securing rescuers/survivors.

**NOTE:** Any additional medical/rescue equipment should be stored in an area that is easily accessible so that any survivor can be given immediate medical attention.

**CAUTION:** PA-HART and survivors will remain seated and belted, or tethered at all times. Upon completion of rescue operations, the aircraft pilot-in-command will determine seating priorities based on the number of survivors and seats available.

## **Hoist Overview**

Internal UH-60

Performance Characteristics: Goodrich Model 42305-1

- Hoist Height: 51.91 Inches
- Hoist Width: 13.50 inches
- Hoist Length: 35.38 inches
- Hoist Weight: 180 pounds
- Boom Rotation: 205 degrees
- Usable Cable Length: 250 feet
- Cable Diameter: 0.188 to 0.194 inches
- Cable Speed: 250 fpm with 300 pound load, 125 fpm with 600 pound load
- Maximum Load: 600 pound
- Power Source: Aircraft Electrical System

**WARNING:** LANDING WITH A LOAD ATTACHED TO THE HOIST HOOK IS PROHIBITED (EXCEPT IN THE CASE OF AN EMERGENCY PROCEDURE).

## SECTION 8 Hand Signals and Communications

### Hand Signals (Ground to Air):



Deploy LSC Quick Strop Note:  
May be used to request Helo sling/Cinch Collar if LSC Quick Strop already deployed



Ready for pickup/ ready for extraction  
*Night: red spinning cylume*



I need assistance/ emergency  
*Strobe on*  
*Night: Waving red cylume*



Deploy rescue litter



I am okay



Monitor radio/lost communication



Abort

### Hoist Hand Signals:



Ready for extraction  
*Night: red cylume extended above head*



10 ft from ground



Monitor radio/lost comm



Hoist up  
*Night: red spinning cylume*



Hoist down  
*Night: red spinning cylume*

## SECTION 9 UH-60/CH-47

### Rescue Operations SECTION 9.1

Search and rescue operations conducted during deployments may involve varying environmental conditions in multiple regions throughout Pennsylvania and beyond. To be successful, these operations demand a cohesive crew that is focused on safety and crew resource management. PA-HART personnel shall participate in: 1) pre-launch , 2) in-flight mission planning, 3) site recon utilizing best approach and equipment methods, and 4) mission debriefings. During briefing, the PA-HART should take into consideration the mission details regarding environmental conditions and have completed an inspection of all PPE.

Environmental / rescue considerations may include:

- Wide area flood operations
- Swift water operations
- Mountain rescue operations
- Mass evacuation
- Residential/commercial building entry to include breaching

Additionally, the role of the PA-HART is not limited to rescue operations while onboard the aircraft. The PA-HART is expected to participate in activities necessary to continue daily operations throughout the deployment. At the discretion of the Pilot-in-Command and/or Crew Chiefs, these duties may include loading/unloading equipment, etc.

#### Pre-launch

1. Participate in mission brief and risk assessment.
2. Don PPE. Do a buddy check!
- 3 Report to aircraft in a timely fashion
4. Conduct safety inspection on themselves and other rescuers to include:
  - Inspection of rescue harness and proper fitting
  - Appropriate head protection (flight helmet and water helmet)
  - Appropriate thermal/environmental protection
  - Mask/Snorkel
  - Gloves
  - Communications/Cylumes
  - Knife
  - Appropriate foot wear
  - Flotation
5. Assist flight crew as directed
6. Ensure that all rescue equipment is onboard aircraft and secured in place.
  - PA-HART is responsible for assisting flight crew as directed when stowing personal gear and securing rescue equipment
7. Assist in aircraft configuration and rigging for rescue operations
8. Occupy secure seating location on aircraft..
9. Verify ICS / radio communications

#### In-flight:

1. Participate in lookout procedures, calling out hazards and obstacles in operations area.
  - Standard terminology (clock position and high, level or low, etc.)
2. Provide additional assistance to flight crew as directed
3. Listen to mission updates throughout flight
  - Make adjustments as appropriate
  - Consider pertinent information

## **Site Recon:**

1. Participate in scene size-up.
  - Identify structural and environmental hazards.
  - Determine number of victims.
  - Determine appropriate equipment and techniques for intended rescues
    - On hook or off hook rescue
    - Environmental dependent
    - Multiple survivors
    - Static or dynamic insertion/extraction
    - Planned extraction device
2. Determine best insertion and extraction site.
3. Determine best location(s) for back-up teams.

## **Mission Debriefing:**

1. PA-HART Program Manager or designee will schedule time and date of debriefing and serve as facilitator.
  - The entire PA-HART will attend debriefing and will have equal opportunity for input.
2. Discuss if the mission objectives were met by the selected course of actions..
3. Determine causes of failure and successes.
4. Determine lessons learned.
5. Revise SOGs and safety protocols as necessary.

## **SECTION 9.2. EMERGENCY CONFIGURATIONS**

There are countless variations of incidents than can occur during rescue operations and outlining procedures for every possible emergency situation are far beyond the scope of these SOGs. Therefore, in the event that an aircrew or Rescue Technicians member becomes injured, incapacitated, or unintentionally separated from the short haul system, the remaining aircrew shall immediately re-evaluate the circumstances and form a revised action plan.

The safety of the aircrew, Rescue Technicians, the victims and aircraft are of the utmost importance when modifying rescue configurations due to an emergency situation.

### **1. Vehicle Rescues**

Situations may arise where the occupants of a motor vehicle or recreational vehicle may need to be rescued by means of an aviation-based rescue. Even though there may be urgent circumstances that warrant an aviation-based rescue from a motor vehicle or recreational vehicle, extreme caution shall be observed by the entire aircrew throughout the evolution.

Aircrew and Rescue Technicians members will perform site recon, identify and discuss hazards, choose insertion and extraction techniques and select rescue equipment for the pending rescue.

Rescue Technicians shall be inserted into the rescue site in a manner that provides the safest ingress and egress for both the rescuers and victims.

Rescue Technicians shall attempt to land on a portion of the car that is flat and parallel with the ground.

Rescue Technicians should avoid grabbing items such as radio antennas, windshield wipers, luggage racks or similar vehicle features.

Rescue Technicians will verify that there are no other victims remaining in the passenger areas of the vehicle.

Rescue Technicians should triage multiple victims and extricate accordingly.

## **2. Structure Rooftop Rescues (Peak)**

Situations may arise where the occupants of a structure have gathered on the peak of a rooftop which require an aviation-based rescue. Even though there may be urgent circumstances that warrant an aviation-based rescue from a rooftop, extreme caution shall be observed by the entire aircrew throughout the evolution.

Aircrew and Rescue Technicians members will perform site recon, identify and discuss hazards, choose insertion and extraction techniques and select rescue equipment for the pending rescue.

Rescue Technician(s) shall be inserted into the rescue site in a manner that provides the safest ingress and egress for both the rescuers and victims.

Rescue Technician(s) shall attempt to land on the lowest portion of rooftop that is free of obstructions, not underwater and deemed to be the safest.

Rescue Technician(s) should avoid grabbing items such as television or radio antennas, gutters or similar rooftop features.

Although some victims may be out of the residence and on the rooftop, Rescue Technician(s) must determine from the victims who are assembled on the rooftop and if there are any other victims remaining inside the structure. If other victims are inside the structure, the remaining aircrew shall be notified so appropriate adjustments can be made to the rescue configurations.

Rescue Technicians should triage multiple victims and extricate accordingly.

## **3. Structure Rooftop Rescues (Breaching)**

Situations may arise where the occupants of a structure have gathered in the attic and/or crawlspace of a residence which may require breaching the rooftop and then an aviation-based rescue. Even though there may urgent circumstances that warrant an aviation-based rescue from an attic crawlspace, extreme caution shall be observed by the entire aircrew throughout the evolution.

Aircrew and Rescue Technicians members will perform site recon, identify and discuss hazards, choose insertion and extraction techniques and select rescue equipment for the pending rescue.

Some aircraft will not be able to transport breaching tools inside the aircraft due to space limitations,. In the event breaching tools are needed, the aircrew will contact the on-scene incident commander and request the necessary equipment be brought to the "lily pad". Resources for breaching may be borrowed from fire or rescue companies already on scene.

Breaching equipment will be transported as an external cargo load along with the Rescue Technician(s) attached to the short haul system.

Rescue Technician(s) shall be inserted into the rescue site in a manner that provides the safest ingress and egress for both the rescuers and victims. If the circumstances permit, the Rescue Technician(s) shall attempt to land on a portion of rooftop that is free of obstructions, not underwater and deemed to be the safest.

The Rescue Technician should avoid grabbing items such as television or radio antennas, vent pipes or similar rooftop features.

Breaching rescues may present a situation where the Crew Chief may lose sight of the Rescue Technician(s); thus making hand signals ineffective. In the event that the Crew Chief loses sight of the Rescue Technician(s) during a breaching rescue, the Crew Chief shall communicate with the Rescue Technician(s) via two-way radio. From this point until visual contact with the Rescue Technician(s) is restored, communication between the Pilot-in-Command, Crew Chief and the Rescue Technician(s) will be via two-way radios.

When communicating via two-way radio, the Rescue Technician(s) should avoid providing information in a conning format; instead the Rescue Technician(s) should use the word equivalents of the hand signals. For example, the Rescue Technician(s)

should avoid “Easy down, 5, 4, 3, 2, 1” and instead use “Lower”, “Level Off” or “Ready for Extraction”. The purpose in this technique is to avoid providing the Pilot-in-Command with contradictory or confusing conning commands.

If the amount of time the Rescue Technician(s) spend searching, triaging and preparing the victim(s) for extraction is extended, the aircrew needs to consider the feasibility and benefits of allowing the Rescue Technician(s) to detach from the short haul system and allow the aircraft to fly away and stage for extraction.

The Rescue Technician(s) should triage multiple victims and extricate accordingly.

#### **4. Structure Rooftop Rescues (Window / Door Insertion)**

Situations may arise where the occupants of a structure have gathered near a window, door or existing opening of a structure and require an aviation-based rescue. Even though there may be urgent circumstances that warrant an aviation-based rescue from a window or existing opening, extreme caution shall be observed by the entire aircrew throughout the evolution.

Aircrew members will perform site recon, identify and discuss hazards, choose insertion and extraction techniques and select rescue equipment for the pending rescue during the preliminary high and low reconnaissance of the rescue site.

Rescue Technician(s) shall be inserted into the rescue site in a manner that provides the safest ingress and egress for both the rescuers and victims.

The Rescue Technician(s) shall attempt to land on the lowest portion of rooftop that is free of obstructions, not underwater and deemed to be the safest.

The Rescue Technician should avoid grabbing items such as television or radio antennas, gutters or similar rooftop features. When moving through windows, Rescue Technicians shall be aware of the potential for broken glass to be present and take proactive measures to avoid injuring themselves or any victims while performing a rescue.

Although two Rescue Technicians may be lowered onto the roof structure, only one Rescue Technician at a time may be lowered into a window, door or existing opening of a structure.

To deploy a single Rescue Technician into a window, door or existing opening of a structure, the Rescue Technician will position themselves on the edge of the roof over the eave or soffit, directly above the window, door or opening of the structure. The Rescue Technician will walk themselves down the side of the building as the Pilot-in-Command, through direction of the Crew Chief, slowly lowers the aircraft.

A window, door or existing opening of a structure may present a situation where the Crew Chief may lose sight of the Rescue Technician(s); thus making hand signals ineffective. In the event that the Crew Chief loses sight of the Rescue Technician(s) during a Window or door insertion rescue, the Crew Chief shall communicate with the Rescue Technician(s) via two-way radio. From this point until visual contact with the Rescue Technician(s) is restored, communication between the Pilot-in-Command, Crew Chief and the Rescue Technician(s) will be via two-way radios.

When communicating via two-way radio, the Rescue Technician(s) should avoid providing information in a conning format; instead the Rescue Technician(s) should use the word equivalents of the hand signals. For example, the Rescue Technician(s) should avoid “Easy down, 5, 4, 3, 2, 1” and instead use “Lower”, “Level Off” or “Ready for Extraction”. The purpose in this technique is to avoid providing the Pilot-in-Command with contradictory or confusing conning commands.

If the amount of time the Rescue Technician(s) spends searching, triaging and preparing the victim(s) for extraction is extended, the aircrew needs to consider the feasibility and benefits of allowing the Rescue Technician(s) to detach from the short haul system and allow the aircraft to fly away and stage for extraction.

The Rescue Technician(s) should triage multiple victims and perform extrication accordingly.

When ready, the Rescue Technician and victim will be extracted up slowly and away from the structure. The Rescue Technician will avoid jumping out of the window to prevent shock loading the short haul system.



## 5. Tree Rescues

Situations may arise where a victim(s) has climbed a tree to escape danger and require an aviation-based rescue. Even though there may be urgent circumstances that warrant an aviation-based rescue from a tree, extreme caution shall be observed by the entire aircrew throughout the evolution.

Aircrew and Rescue Technician(s) members will identify and discuss hazards, choose insertion and extraction techniques, and select rescue equipment for the pending rescue.

Rescue Technician(s) shall be inserted into the rescue site in a manner that provides the safest ingress and egress for both the rescuers and victims.

The Rescue Technician(s) shall enter a portion of the tree that is not underwater, has minimal obstructions and deemed to be the safest.

The Rescue Technician(s) should avoid climbing over and under multiple tree branches. Excessive climbing over and under tree branches creates a striking hazard during extraction.

As a safety measure, during tree rescues the entire aircrew should avoid allowing excessive slack in the short haul line or “J-ing” of the line. Excessive slack or “J-ing” of the short haul line creates a condition where the fall protection created by the taut short haul line is absent.

Tree rescues may present a situation where the Crew Chief may lose sight of the Rescue Technician(s) under the foliage of the tree; thus making hand signals ineffective. In the event that the Crew Chief loses sight of the Rescue Technician(s) during a tree rescue, the Crew Chief shall communicate with the Rescue Technician(s) via two-way radio. From this point until visual contact with the Rescue Technician(s) is restored, communication between the Pilot-in-Command, Crew Chief and the Rescue Technician(s) will be via two-way radios.

When communicating via two-way radio, the Rescue Technician(s) should avoid providing information in a conning format; instead the Rescue Technician(s) should use the word equivalents of the hand signals. For example, the Rescue Technician(s) should avoid “Easy down, 5, 4, 3, 2, 1” and instead use “Lower”, “Level Off” or “Ready for Extraction”. The purpose in this technique is to avoid providing the Pilot-in-Command with contradictory or confusing conning commands.

The Rescue Technician(s) should triage multiple victims and extricate accordingly.

When ready, the Rescue Technician and victim will be extracted slowly up and away from the structure. The Rescue Technician will avoid jumping out of the tree to prevent shock loading the short haul system.

## SECTION 9.3 UH-60/CH-47 Rescue Procedures

### Hoist Deployment of Rescue Technician:

1. Crew Chief ensures rescuer takes the appropriate extraction device based upon the scene size-up.
2. Rescue Technician(s) applies tether and moves into deployment position when directed by Crew Chief
3. Attach hoist hook to rescue harness and then disconnect from safety tether after the hook gate is locked and secure.
  - Rescue Technician(s) shall always attach themselves to the hook first followed by any extraction device when not using a common survivor/Rescue Technician extraction connection point.
4. Conduct self-safety checks.
5. Provide Crew Chief with a thumbs up or helmet tap indicating rescuer is prepared for deployment.
6. Rescue Technician(s) open the door and exit the aircraft when directed to do so by the Crew Chief.
7. Once in position, the Rescue Technician(s) will remain stable and visually scan the intended target, Crew Chief, and the surrounding environment.
8. The Crew Chief will ensure the rescuer is clear of the airframe and landing gear when lowering begins.
9. Provide hand signals or radio communications to Crew Chief.
  - Continue down
  - Use hand signal to indicate distance from ground.

10. Remain aware of time spent suspended in harness and take action as needed to mitigate potential compartment syndrome.
11. The Rescue Technician(s) will proceed with on hook/off hook plan of action once in contact with the surface

**NOTE:** In swift water environments, Rescue Technician(s) shall remain on hook at all times

### **Hoist Extraction:**

1. Once Rescue Technician(s) makes contact with the survivor:
  - Secure the survivor in the appropriate extraction device and verify all equipment is appropriately fitted and secured to the survivor.
  - Brief the survivor on extraction and safety.
  - Signal “ready for pickup” (hand signals and verbally announce via radio communications/ICS when able) when ready for hook to be deployed confirmed the hook gate is locked and secure.
  - If the Rescue Technician(s) remained on hook he will signal “ready for extraction”.
  - Connect to the hook, lock hook gate, and signal “ready for extraction” (hand signals and verbally announce via radio communications/ICS when able).
2. Rescuer should always attach himself to the hook first then any extraction device when not using a common survivor Rescue Technician(s) extraction connection point.
3. Rescuer always secures on the survivor’s left when attaching to an extraction litter.
4. Ensure the survivor is not tethered to the ground by any means prior to signaling “ready for extraction”.
5. Exercise Cable, Attached and Plum (CAP) inspection prior giving the “ready for extraction” signal.
  - Be mindful of cable/rope slack and possible entanglement.
  - Observe hook and extraction device for proper loading during extraction
  - Will provide hand signals or radio communications to Crew Chief
    - Continue up
    - Axis clear
  - Protect survivors head during extraction
  - Make contact with the airframe with one hand and assist the Crew Chief in positioning the survivor’s back toward the aircraft
6. Reach through the bridle to assist the Crew Chief in stabilizing the extraction litter.
  - The Rescue Technician(s) will maintain the survivor/litter position once at the cabin door
  - Move into the cabin at the direction of the Crew Chief
  - The Rescue Technician(s) will guard the open door of the aircraft and assist the Crew Chief in securing the survivor in a Survivor Restraint System or securing the litter to the floor of the aircraft once in the cabin
  - The Rescue Technician(s) will attach, detach from the hook, and hand hook to the Crew Chief

**CAUTION:** *It is critical that the Rescue Technician(s) confirms the survivor is clear from ropes, throw bags and other ground based rescue attempts before signaling for extraction*

### **Short Haul Insertion of Rescue Technician(s):**

1. Coordinate with crew and follow Crew Chief directions.
2. The aircraft will land at a suitable site.
3. The Rescue Technician(s) will attach himself to the distal end of the short-haul line and walk off at the 3 or 9 o’clock position as directed by Crew Chief. The Rescue Technician(s) will not walk toward the 12 o’clock position on the UH-60 due to rotor clearance and Crew Chief visibility.
4. As the aircraft begins to ascend, the Rescue Technician(s) should assist with positioning himself directly under the aircraft to minimize swing. The Rescue Technician(s) shall also observe the rope to ensure it does not become entangled with the landing gear or otherwise fouled.
5. The Rescue Technician(s) should provide frequent updates regarding his position in relation to obstacles in the flight path via hand signals or verbal communication.
6. The Rescue Technician(s) will signal when they are 10 feet from the ground when being lowered to the insertion area.

7. Rescue Technician(s) will remain aware of time spent suspended in harness and take action as needed to mitigate potential compartment syndrome.
8. The Rescue Technician(s) should immediately detach the short-haul line (as appropriate) once on the ground.
9. The Rescue Technician(s) will signal to Crew Chief all clear by either radio communications or extending the released end of the short haul line away from their chest.
10. The Rescue Technician(s) will notify the Crew Chief when he has made survivor contact.
11. The Rescue Technician(s) will gather equipment and prepare for extraction.

**NOTE:** In swift water environments, the PA-HART should remain attached to the short haul line and proceed with making survivor contact, secure the survivor in the extraction device and signal when “ready for extraction”.

### **Short Haul Extraction of PA-HART:**

1. Once Rescue Technician(s) makes contact with the survivor:
  - Secure the survivor in the appropriate extraction devices and verify all equipment is appropriately fitted and secured to the survivor
  - Brief the survivor on extraction and safety
  - Signal “ready for pickup” when ready for short haul line.
  - Rescue Technician(s) will connect to the line and signal “ready for extraction”.
    - Rescue Technician(s) should always attach themselves to the line first then any extraction device when not using a common survivor/ Rescue Technician(s) extraction connection point.
    - The Rescue Technician(s) will always secure themselves on the survivor’s left when attaching to an extraction litter.
    - Rescue Technician(s) will ensure the survivor is not tethered to the ground by any means prior to signaling for extraction
    - Rescue Technician(s) will exercise Rope, Attached and Plum (RAP) inspection prior giving the “ready for extraction” signal.

**CAUTION:** *It is critical that the Rescue Technician(s) confirms the survivor is clear from ropes from throw bags and other ground based rescue attempts before signaling “ready for extraction”.*

- Be mindful of rope slack and possible entanglement
- Observe carabineer and extraction device for proper loading during extraction
- Should assist, as possible, with positioning the load directly under the aircraft to minimize swing.
- Provide hand signals or radio communications to Crew Chief
- Protect survivors head during extraction
- Provide frequent updates regarding position in relation to obstacles in the flight path.
- Signal when 10 feet from the ground.
- Immediately detach the short-haul line once on the ground.
- If the operation involves multiple extraction, the Rescue Technician(s) shall release the survivor from the extraction device and remain attached to the short haul line for immediate redeployment.
- The Rescue Technician(s) will then signal to Crew Chief all clear of the short-haul line and ready for extraction.

## **SECTION 10 UH-60/CH-47 Emergency Procedures**

### **SECTION 10.1 General Emergency Procedures**

*The responsibility of Rescue Technician(s) personnel during In-Flight Emergencies:*

Review the following procedures, if the Pilot-in-Command announces that an emergency exists and that an emergency landing is imminent:

- Turn off any O2 system (if installed, time permitting)
- Secure any passengers / survivors (time permitting)
- Secure loose equipment (time permitting)

- If using a tether or Survivor Restraint System (SRS), every effort should be made to return to a seat and fasten seatbelts and shoulder harnesses.
- Follow any additional commands from the flight crew.
- The HEED must be turned on prior to takeoff if conducting operations over water.

Review the following procedures for exiting the aircraft following an emergency landing:

- Wait until the rotors have stopped turning to exit the aircraft unless there is a cabin fire, and then exit the aircraft as Safely as possible.
- Use the emergency exits only if the conventional exits are inaccessible or inoperable
- Rescue Technician(s) will evacuate themselves prior to attempting to evacuate aircrew and survivors
- All crewmembers, Rescue Technician(s), and survivors will meet at the 12 o'clock position 50 - 75 yards away or as briefed during the crew and passenger briefs. If conditions permit

**WARNING: Avoid exiting the aircraft to the 12 o'clock or 6 o'clock positions in order to avoid the main rotor, tail rotor blades or engine exhaust. Watch if exiting an aircraft that has come to rest on a slope as the uphill side provides minimal rotor clearance with the ground.**

**WARNING: When ditching in water, avoid exiting the aircraft until all motion has stopped. Water activated flotation devices are not authorized for use. Flotation devices will not be inflated until the individual has completely exited the aircraft.**

## SECTION 10.2 Aircraft General Emergencies

There are only a few emergency situations that can occur during rescue operations that would have an immediate life threatening effect on the crew. If the crew is properly prepared, briefed, and ready to react, personal injury and aircraft damage can be minimized or averted. The PC will brief anticipated courses of action for emergencies during hoist operation.

The PC will brief fly away/forced landing plan prior to any Hover OGE/Rescue Operations.

Emergencies during rescue operations can be broken down into three categories;

- 1. Engine Fires** - An engine fire during rescue operations can cause special problems if not responded to appropriately. For example, if a fire is confirmed and the appropriate engine shut down during an OGE hover, you will induce a single engine failure and may not have single engine OGE hover capability on the remaining engine. Upon illumination of a fire light, the Crew Chief must first confirm the presence of a fire. If a fire is confirmed, the best course of action may be to immediately land the aircraft or delay executing the appropriate emergency procedure until the aircraft is at minimum single engine airspeed (VSE). After reaching VSE, the emergency procedure could be executed. Each PC will brief flight crew of procedures he expects to execute in case of an engine fire during an OGE hover.
- 2. Non Critical Emergencies** - Any emergency that does not result in immediate descent or loss of directional control is considered a non-critical emergency. These emergencies should be handled with caution and in a manner that will not result in the unnecessary injury personnel or damage to the aircraft. For example, pilot assist malfunctions, chip malfunctions, and most miscellaneous type malfunctions can be handled by maintaining control of the aircraft and executing the appropriate emergency procedure to eliminate the malfunction. If the malfunction is not correctable, then the best course of action is to terminate rescue operations and then execute a precautionary landing. The most important action is fly the aircraft and maintain situational awareness of the rescuer and survivor.
- 3. Critical Emergencies** - Critical emergencies are those emergencies that could ultimately result in death or severe injury to the flight crew. An engine failure or tail rotor malfunction, during hoist operations is a critical emergency. Some considerations that must be briefed are how these procedures can be accomplished to minimize injury to the crew, survivor and rescuer.

**WARNING: Attempting to fly away with limited maneuver area may result in more aircraft damage and crew injuries than allowing the aircraft to settle vertically into obstacles. The PC must weigh the potential benefit against the possible result. The PC must know what altitudes will allow for a safe fly away and what altitudes will not.**

## SECTION 10.3 Aircraft Emergencies - Short-Haul Emergencies

### Rescue Technician(s):

Review emergency procedures prior to conducting rescue operations:

1. Accidental cargo hook release
  - Note that the cargo hook has released and that the secondary safety is sustaining the load.
  - Immediately report the situation to the aircrew and indicate height above ground level (AGL).
  - Immediately direct aircrew to lower him to a safe area without delay.
2. Oscillation/Spin
  - Do the best to focus on a central point of the litter or bridle and be prepared to touch down on the surface.
  - Should attempt to control the oscillation/spin by extending arm on the opposite direction of the oscillation/spin.

**NOTE:** Oscillations and spins generally occur, when the aircraft is hovering with a slight tail wind and quartering tail wind.

3. Entanglement
  - If the ascent/descent is stopped, the Rescue Technician(s) should do his best to stabilize his position.
  - Notify the aircrew when stable.
  - Try to disentangle and notify the aircrew if slack or tension is required in the Short-Haul line.
  - Notify the aircrew to jettison the Short-Haul.
4. Emergency Jettison
  - The Crew Chief or Pilot may emergency jettison the Short-Haul during serious aircraft emergencies.
  - Rescue Technician(s) will likely be unaware of the emergency; however, if they have time to react they should shed any rescue equipment they may have with them and prepare to contact the surface

### PAANG:

Review emergency procedures prior to conducting rescue operations:

1. Accidental cargo hook release
  - The Crew Chief will immediately report the situation to the aircrew, indicate height above ground level (AGL), and verify that the secondary safety is holding.
  - The will Crew Chief will direct the aircrew to lower the Rescue Technician(s) to a safe area immediately.
2. Oscillation/Spin
  - The Crew Chief will notify the aircrew of the oscillation/spin.
  - The Pilot-in-Command may direct the Pilot to move the aircraft towards the oscillation or increase power in an attempt to arrest it.
  - If the oscillation/spin cannot be arrested or increases, the Pilot-in-Command will immediately direct the P to lower the Rescue Technician(s) to a safe area.
  - If a safe area is not readily available, the aircrew may attempt a 'fly away' in order to arrest the oscillation/spin. The minimum airspeed required to arrest the oscillation/spin will be used (10-15 kts); however at no time will the aircrew exceed 60 kts.

**CAUTION:** Extreme care must be taken to gently lower the Rescue Technician(s) to the ground/water.

**NOTE:** Oscillations and spins generally occur when the aircraft is hovering with a slight tail wind and quartering tail wind.

3. Entanglement
  - The Crew Chief will notify the aircrew of the entanglement.
  - Maintain visual contact with the Rescue Technician(s) at all times.
  - Notify the aircrew when the Rescue Technician(s) is stable.
  - Direct the aircrew as required to provide the Rescue Technician(s) will slack/tension.
  - If required, the Rescue Technician(s) will notify the aircrew to jettison the Short-Haul.
  - The Pilot-in-Command will direct the P to jettison the cargo hook using the cargo hook release switch and for the Crew Chief to release the secondary release mechanism.
  - The Crew Chief will notify the aircrew when the Short-Haul is clear of the aircraft.

4. Emergency Jettison (See Emergency Jettison Procedure)
  - The Crew Chief or Pilot may emergency jettison the Short-Haul during serious aircraft emergencies.
  - Rescue Technician(s) will likely be unaware of the emergency; however, if they have time to react they should shed any rescue equipment they may have with them and prepare to contact the surface
5. Disabled / Incapacitated Rescue Technician(s)
  - The Crew Chief will immediately announce to the aircrew that the Rescue Technician(s) appears to be disabled / incapacitated.
  - The Crew Chief will maintain visual contact with the Rescue Technician(s) at all times.
  - The Crew Chief will notify the aircrew when the Rescue Technician(s) is stable.
  - The Pilot-in-Command will immediately direct the P\* to lower the Rescue Technician(s) to a safe area with first response personnel present or an area where the aircraft can land, for the aircrew to render assistance.
  - Once the Rescue Technician(s) is safely on the ground the aircraft will be positioned away from the Rescue Technician(s) and the Short-Haul released.

## **SECTION 10.4 Emergency Jettison Procedure**

1. When conducting Short-Haul Operations the Cargo Hook switches will be in accordance with the aircraft operators manuals and individual unit SOP/SOG, when the Short-Haul is deployed. The cargo hook switch will be in a “safe” position at all times unless an emergency jettisoning of the Short-Haul is required.
2. In the event an aircraft emergency occurs during Short-Haul Operations requiring the emergency jettisoning of the Short-Haul the following steps will be taken:
  - If possible, put rescuer and survivor on the ground prior to jettisoning the Short Haul
  - The PC will announce “Jettison, Jettison, Jettison”. **The PC is the only crew member to announce “Jettison, Jettison, Jettison”**
  - The Crew-Chief announces whether or not the rescuer is on the ground and will challenge the command with “cut line”. “Rescuer on the ground – confirm cut –line?” or “Rescuer airborne – Hold”
  - The PC will repeat the command once more, “Jettison, Jettison, Jettison”.
  - The Crew-chief (left side) will release the secondary safety securing the Short-Haul.
  - The Pilot Not On Controls (P) will ARM the cargo hook.
  - The Pilot on the Controls (P\*) attempts to release the Short-Haul by pressing the NORMAL release button.
  - The P attempts to release the Short-Haul by pressing the EMERGENCY release button.

**WARNING: No attempt shall be made by the rescuer to cut a taut short-haul line as it could backlash into the helicopter rotor blades.**

**WARNING: If rescue personnel must be jettisoned due to an extreme emergency, every effort will be made to reduce the risk of injury or death by after putting the rescuer on the ground and or reducing altitude and ground speed.**

**WARNING: Jettisoning suspended personnel over bodies of water is not recommended due to the possibility of the individual drowning or from receiving injuries from subsurface obstacles.**

## SECTION 10.5 Hoist Emergencies

### Rescue Technician(s):

Review emergency procedures prior to conducting rescue operations

1. Hoist failure/Blocked hoist
  - Will notice that vertical movements by the hoist itself have stopped and should transition their thought process to short haul operations, immediately report height above ground to the Crew Chief via radio and take into consideration obstacles in flight path
2. Oscillation
  - Should do their best to focus on a central point of the litter or bridle and be prepared to touch down on the surface or reach the airframe to arrest the oscillation
3. Run away hoist
  - If the Rescue Technician(s) believes the hoist is unintentionally paying out cable they should prepare themselves to contact the surface.
  - If the descent is stopped, the Rescue Technician(s) should transition their thought process to short haul operations, immediately report height above ground to the Crew Chief via radio and take into consideration obstacles in flight path.
4. Emergency cable cut
  - The Crew Chief or Pilot may emergency cut the hoist cable during serious aircraft emergencies.
5. The Pilot-in-Command will announce “Cut, Cut, Cut”. The PC is the only crewmember to announce “Cut, Cut, Cut”.
  - Rescue Technician(s) will likely be unaware of the emergency; however, if they have time to react they should shed any rescue equipment they may have with them and prepare to contact the surface.

## PAANG

### General

1. Emergency cable cut
  - The Crew Chief or Pilot may emergency cut the hoist cable during serious aircraft emergencies.
  - The Pilot-in-Command will announce “Cut, Cut, Cut”.
  - The Crew Chief announces whether or not the rescuer is on the ground and will challenge the command with “cut line?” Rescuer on the ground – confirm cut –line?” or “Rescuer airborne – Hold”
  - The Pilot will repeat the command once more, “Cut, Cut, Cut”.
  - The Pilot will activate the emergency cable cut switch. The Crew Chief (right side) will announce “Cable Away”. If the cable fails to release, the crew chief (hoist operator) will activate his/her emergency cable cut switch.
2. Stuck Internal Hoist Cable
  - Keep survivor clear of obstacles/ground at all times.
  - Check hoist power-on indicator light for power.
  - Check Master Switch – ON.
  - Check to see if pilot has control of hoist. If it is determined that the pilot control panel is the only way to operate the hoist the Pilot will perform “Pilot controlled Hoist OPS”.
  - Check circuit breakers, if breakers are in; recycle.
  - Check to ensure up-limit switch is not engaged.
  - Check all electrical connections.
  - Fly to a safe landing at a suitable speed for the survivor, keeping clear of obstacles and ground at all times. Slowly lower the aircraft until the survivor is safely on the ground. Keep free cable clear of the aircraft, land and recover survivor and loose cable.
3. Stuck Hoist Boom
  - Disconnect reaction arm from floor, move hoist boom in by hand.
  - Over-temp Light Appears

- Continue to lift survivor
- Check cooling fan for proper operation or obstruction.
- Secure hoist operations until over-temp conditions are eliminated.

#### 4. Runaway Hoist Cable

- Keep survivor clear of obstacles and ground at all times.
- Secure hoist power. Master Switch - OFF
- Follow STUCK HOIST CABLE procedure.

#### 5. Hoist Cable Contact with Airframe

- Attempt to lower survivor to the ground and disconnect from hoist cable.
- Stop hoist operations and inspect cable for damage.

#### 6. Load Oscillation

- Attempt to arrest by counter rotation of cable in 1-2 foot circles; if unable to stop the oscillation, lower the survivor.
- Raising the survivor will worsen the situation.

#### 7. Pilot Controlled Hoist Operations

- The Pilot Not On Controls (P) will operate the cockpit hoist control panel.
- The P will take hoist commands from the Hoist Operator.
- The survivor should be lifted or set down on the ground with the aircraft, not the hoist.

#### 8. Stuck External Hoist Cable

- Keep survivor clear of obstacles/ground at all times.
- Check Master Switch - ON.
- Check Backup Hyd Pump – ON.
- Check circuit breakers, if breakers are in; recycle.
- Check to ensure up-limit switch is not engaged.
- Check all electrical connections.
- Hoist Backup Control – ON. Use UP / DOWN toggle.
- Check to see if pilot has control of hoist. If it is determined that the pilot control panel is the only way to operate the hoist the P will perform “Pilot controlled Hoist OPS”.
- Fly to a safe landing at a suitable speed for the survivor, keeping clear of obstacles and ground at all times. Slowly lower the aircraft until the survivor is safely on the ground. Keep free cable clear of the aircraft, land; recover survivor and loose cable.

#### 9. Runaway Hoist Cable

- Keep survivor clear of obstacles and ground at all times.
- Secure hoist power. Master Switch – OFF
- Backup Hyd Pump Switch – OFF
- Follow STUCK HOIST CABLE procedure.
- Fouled Cable, Hook or Device
- Maintain position.
- Play out slack in cable.
- Have ground personnel or crewmember free cable or device.
- Cut cable with cutters.
- Cut with shear switch.

#### 10. Hoist Cable Contact with Airframe

- Attempt to lower survivor to the ground and disconnect from hoist cable.
- Stop hoist operations and inspect cable for damage.



- Load Oscillation
- Attempt to arrest by counter rotation of cable in 1-2 foot circles; if unable to stop the oscillation, lower the survivor
- Raising the survivor will worsen the situation.

#### 11. Pilot Controlled Hoist Operations

- The Pilot will operate the cockpit hoist control panel, taking hoist commands from the Hoist Operator.
- The Pilot will take commands from the Hoist Operator.
- The survivor should be lifted or set down on the ground with the aircraft, not the hoist.

## SECTION 11 Landing Zone Considerations and Management

### Definitions/Roles

An important aspect of safe PA-HART operations is the understanding, selection, and use of areas deemed as heliports, helibases, helispots/landing zones/pick-up zones, and helipads/touchdown pads. In the interest of clarity regarding these kinds of helicopter landing areas, the following definitions and roles from the Interagency Helicopter Operations Guide will apply regarding PA-HART operations.

**Deck** - That part of the helibase operational area that includes the touchdown pad, safety circle, hover lanes, and external cargo transport area. It is also usually roped off with flagging.

**Deck Coordinator (DECK)** - The Deck Coordinator is supervised by the Helibase Manager and is responsible for providing coordination at the helibase for personnel and cargo movement. The Deck Coordinator supervises the Parking Tenders, Loadmasters, and survivor/civilian escorts when utilized.

**Helibase - Permanent** - A designated, permanent facility for helicopter operations. Permanent helibases should have the necessary support facilities and equipment.

**Helibase - Temporary** - A base for helicopter operations established to serve a temporary or intermittent incident or project need. Temporary helibases should have the necessary support facilities and equipment.

**Helibase Manager** - The Helibase Manager has primary responsibility for managing all activities at the assigned helibase. Within the ICS system, the Helibase Manager is supervised by the Air Support Group Supervisor. On projects, the Helibase Manager may report to an Air Support Group Supervisor or Air Operations Branch Director if these positions are assigned. Otherwise, the Helibase Manager usually reports to the Project Aviation Manager. There are two types of helibase managers: a Type I Helibase Manager is qualified to manage four or more helicopters; a Type II Helibase Manager may manage three or less helicopters.

**Helicopter Manager** - A person trained in the management of helicopters.

**Heliport** - permanent facilities for the operations of helicopters which has been built to FAA standards and which are marked on aeronautical charts. Natural resource agencies refer to agency heliports as Permanent Helibases.

**Helispot/Landing Zone (LZ)** - A helispot is a natural or improved takeoff and landing area intended for temporary or occasional helicopter use. It may or may not have road access. In many cases, helispots do not meet the requirements of a helibase and thus should not be referred to as helibases. The military refers to these kinds of areas as Pickup Zones (PZ).

**Helispot Manager/Landing Zone Manager** - The Helispot/LZ Manager is responsible for providing safe and efficient management of all activities at the assigned helispot. The Helispot/LZ Manager is supervised by the Helibase Manager.

**Helipad/Touchdown Pad** - A designated area, usually with a prepared or improved surface, on a heliport, airport, takeoff/landing area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters.

**Lily Pad** - A temporary assembly point for survivors or rescuers during rescue operations that does not require landing. Typically used during large scale flood operations when either must be immediately removed from harm's way and to a safer, temporary, area.

**Safety Circle** - A safety zone that provides an obstruction-free area on all sides of the landing and take-off area

**Traffic Pattern** - The traffic flow that is prescribed for landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

1. **Upwind Leg:** A flight path parallel to the landing area in the direction of landing.
2. **Crosswind Leg:** A flight path at right angles to the landing area in the direction opposite to landing.
3. **Downwind Leg:** A flight path parallel to the landing area in the direction opposite to landing. The downwind leg normally extends between the crosswind leg and the base leg.
4. **Base Leg:** A flight path at right angles to the landing area off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended approach path centerline.
5. **Final Approach:** A flight path in the direction of landing along the extended approach path centerline. The final approach extends from the base leg to the extended approach path centerline. An aircraft making a straight-in approach VFR is also considered to be on final approach.

## Planning and Site Considerations

The proper selection of landing areas is essential to the safety of personnel and equipment during aircraft operations. Therefore, the following are some general considerations when selecting an aircraft landing area:

- The site is in accordance with the local, state, and federal laws and regulations as well as any agency regulations that govern aircraft operations. If the property is private, permissions have been granted by the landowners or their designees.
- The site has been selected based on size, grade, surface material, primary aircraft activities, aircraft type, and aircraft/ activity volume and such operations or activities can be externally supported as needed.
- Wind, weather, wires, approach paths, departure paths, and obstacles have been identified and provided to the aircrews as required. As well, means to safely access and depart the aircraft and the landing area from the ground for support personnel and equipment has been identified when required.
- When possible, pilots have been allowed to offer input on site selection.
- The area can be clearly identified from the air and on maps during day and night operations.
- The perimeter of the area can be secured.
- Impact on surrounding activities/occupants such as business, education, recreation, neighborhoods, and roads/ traffic.

## Landing Area Checklist

A typical and basic landing area criteria checklist for most PA-HART helicopter operations is:

- Essential landing area management roles have been identified/reviewed and assignments have been made (Assignment/ role identifiers such as vests should be issued when available)
- The type/use of landing area identified and using Long/Lat or UTM UH-72 and 200' wide X 200' long for UH-•0 is preferred, level with a firm surface (<7 degrees of grade) Is this a two-way helispot or one-way helispot?
- Location and height of vertical hazards have been identified- especially in any approach or departure paths
- If accessible, the area has been thoroughly inspected by qualified personnel
- Foreign Objects and Debris (FOD) -have been removed and secured
- When possible, free of sand, gravel, and other natural debris
- Safe ground lighting that does not affect aircraft operations is being utilized as required
- The landing area and landing pad has been secured, control entry/exits points have been identified, and perimeter

tape (when feasible) has been deployed

- The location, security, staffing, and accessibility of any fire or life safety equipment (If an outside agency such as a local fire department is being utilized, have they been briefed on aircraft type, fuel, and response expectations)
- Any essential equipment (fire extinguishers, EMS, litters) has been secured and any non-essential equipment or vehicles have been removed
- Radio or ground (hand signals) communications with arriving or departing aircraft/aircrews has been established
- Parking areas for multiple aircraft operations have been identified and marked
- Any passengers or survivors have been given a safety brief, supplied with PPE as required, are escorted, and any loose clothing or equipment items on those persons has been secured

## Landing Zone Fire and Life Safety Personnel and Equipment

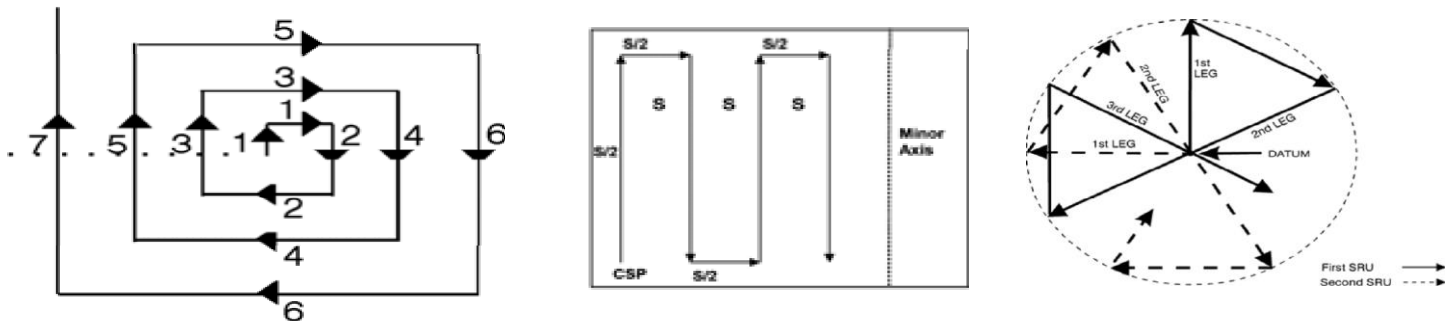
Typical PA-HART operations can be dynamic, brief, involve multiple aircraft, involve refueling activities, or involve a survivor transfer from one aircraft to another. Along with existing PAANG standards, some considerations for fire and life safety equipment during these kinds of operations are:

1. Ample and accessible fire extinguishers for each aircraft Helipad/Parking Pad area (LZ or PZ). Most agencies recommend a minimum 20 lbs. Type ABC per aircraft/per area as defined.
2. A review and briefing on the location of existing fire and life safety equipment that is already on the aircraft. Notification to the local fire, EMS, rescue or other emergency services agencies regarding aircraft operations in their response areas. If these agencies are requested to stand-by at the landing area, a brief review of aircraft type, operations, and expectations should be conducted.
3. If external emergency services support is utilized during training events, such as boat rescue and dive teams, those members will be provided and aircraft operations and familiarization briefing by PAANG and PA-HART members. Any refueling activities operate under the auspices of existing FAA, airport, PAANG rules, regulations and guidance documents with regards to fire and life safety response and equipment.

## SECTION 12 Airborne Search Tactics

Search and rescue missions present a variety of challenges. There is no single technique or search pattern that will work for all missions. Searching by air is not simply flying around randomly and looking for the patient. Crews will select, and then fly a search pattern based on the facts and circumstances. The United States Coast Guard (USCG) estimates that a properly selected and flown search pattern should be able to find the subject 90% of the time, provided that there is accurate and timely information as to where the person was last seen. The point last seen is the most critical piece of information; this gives crews an accurate starting point. Without this information the search is likely relying on luck. When responding to a search, such as a lost hiker, lost child or possible drowning, the most beneficial piece of information the crew can request is where the person was last seen by a reliable and credible witness. It is important to quickly have ground resources locate and interview any eyewitness that can actually offer sound and solid information.

### Examples of Air Search Patterns:



## **SECTION 13 Training Documentation**

Rescue Technicians are issued a position task book and are responsible for maintaining it up to date. The position task book must be signed by the Program Manager or designee and the PANG upon each training exercise. The Rescue Technician is responsible for the below:

1. Assuring the position task book is completed correctly and up to date.
2. Signed by the Program Manager or designee and the PANG.
3. Must maintain position task book to be available for program manager upon request.

An Incident Action Plan will be created for each training event. A pre-formatted IAP has been developed specifically for PA-HART use. This IAP shall be used for all training events that will involve PA-HARTs flying on aircraft.

The pre-formatted IAP (HPZ-R2\_IAP) also includes a check list and syllabus for each training scenario that will be performed to include specific tasks that each individual should complete. Upon completion of those particular tasks, a spreadsheet will be updated showing PA-HART personnel and associated completed tasks and the last date that task was completed. PANG will train in accordance with their specific Unit/AASF Standard Operating Procedures, and will train at least quarterly in a combined exercise with the PA-HART technicians assigned to their particular aircraft. Aircrews will train live hoist with PA-HART on a monthly basis as scheduled through the PFBC Training. Also aircrews will participate in the scheduled quarterly PA-HART exercise combined with other aircrews. Aircrews will train quarterly hoist with PA-HART as scheduled through the PFBC.

### **PA-HART Rescue Technicians**

PA-HART Rescue Technicians shall attend at a minimum of 3 training sessions each year with an assigned aircraft. These 3 sessions shall include 2 basic sessions, and 1 advanced sessions. In addition to required PA-HART training sessions, PA-HART are required to remain proficient in all rescue skills as established by local and state rescue standards. Further requirements include maintaining current medical certification.

## **Appendix A: Duty Descriptions**

This Appendix describes critical PEMA management personnel and each position within the PA-HART Team. Each position will be described, responsibilities listed, minimum qualifications needed and who appoints the team member to this position.

### **Chief Deputy Director of PEMA:**

- Oversees the Division of Emergency Management
- Grants final operational mission approval
- Appointed by the Governor

### **Director of Special Deployment and Response/Search and Rescue:**

- Encompass all aspects and functions associated with the mission and requirements of the Emergency Support Function #9, Search and Rescue program as defined in the State Emergency Operations Plan, PA Act 227 and PA Title 35.
- Reports directly to the PEMA Deputy Director for Operations and supervises one Emergency Management Specialist position. Also, develops policies, procedures and systems which support the agency's statewide activities related to preparedness, response and recovery.
- Provides policy guidance and direction to the PA Urban Search and Rescue Team (US&R), PA-HART, special rescue teams and organizations. These entities include, but are not limited to: US&R, technical rescue, wilderness and mountain rescue, mine rescue, water rescue, and aeronautical search and rescue. In addition, this position serves as a liaison between PEMA and the Sponsoring Agency to the federally US&R Task Force (PA-TF1) Program. PA-TF1 is a component of the Federal Emergency Management Agency's (FEMA) national US&R response system responsible for the organization of certified teams nationwide for deployment to catastrophic disaster scenes to perform sophisticated search and rescue operations.
- The PEMA Search and Rescue Chief (SAR) acts as the day-to-day coordinator for the Specialized Statewide Response Teams (SSRT) recognized by the Commonwealth under provisions of Act 227 and Title 35.
- This position provides assistance, coordination, policy, leadership, and guidance to these specialized teams on requirements for recognition and certification as a SSRT, as well as aspects of the SAR program missions and functions encompassing personnel and fiscal matters, training and exercises and operational and response activities, and procurement and logistical requirements. The SAR also provides the required liaison between the SSRTs and affiliated federal, state and local government agencies, professional associations, and appropriate private and public sector organizations.
- Oversees the administrative functions of the PA-HART team.
- Assess the need, risk and benefit of a PA-HART deployment with information/ recommendations provided by the SAR, Division Duty Officer, affected Emergency Management Coordinator, Lead Aviator and Senior Strike Team Leader
- Appointed by the Deputy Director.

### **SAAO or designee (PANG):**

- Responsible for managing the helicopter operations of PA-HART activation and deployment.
- Assess the need, risk and benefit of a PA-HART deployment with information/ recommendations provided by the PEMA, Division Duty Officer, affected Emergency Management Coordinator, Lead Aviator and Senior Strike Team Leader.
- Determines the appropriate PA-HART air assets for deployment.
- Coordinates mission response activities with PEMA, PFBC, and the airframe aviation leaders.

## **PA-HART Program Manager**

- Oversees the day-to-day operations of the PA-HART team.
- Maintains all applicant information, including Application and Scoring Packets, sponsoring agency Memorandums of Agreement, statements of worker's compensation coverage, copies of required certifications, PA-HART Task Books, and official copy of PA-HART SOGs.
- Update or amend PA-HART SOGs as needed and distribute to all team members.

## **PA-HART Senior Strike Team Leader**

- Lead for operational functions
- Assists in overseeing the day-to-day operations of the PA-HART team.
- Assists program manager in maintaining all applicant information, including Application and Scoring Packets, sponsoring agency Memorandums of Agreement, statements of worker's compensation coverage, copies of required certifications, PA-HART Task Books, and official copy of PA-HART SOGs.

## **PANG Training Standards Officer**

- Responsible for ensuring all PANG personnel are trained in accordance with written policies and procedures.

## **PEMA Division Duty Officer**

- Full time employee of PEMA and is appointed by the Director of PEMA.
- Serves on a rotating on-call schedule and is the appointed decision maker for PEMA.

## **Air Mission Commander**

- Leader of Pilots, Crew Chiefs & Hoist Operators of a specific airframe platform.
- Qualified to be a Rescue Mission Pilot-In-Command or Rescue Pilot-On-Controls in accordance with agency qualifications and requirements.

## **Strike Team Leader**

- Leader of PA-HART Technicians of a specific airframe platform.
- Qualified as a Helicopter Rescue Technician
- Appointed by and reports to the Senior Strike Team Leader.

## **Technician Training Standards Officer**

- Serves as the Lead Trainer for PA-HART.
- Coordinates with the Senior Strike Team Leader and the aviation leads to conduct training on a regular basis.
- Creates training standards, exercises and testing for PA-HART.
- Maintains copies of all training records and standards at the conclusion of training events.
- Maintains awareness of current practices, nation and worldwide, and makes recommendations on possible changes to the PA-HART program.
- Appointed by the Senior Strike Team Leader.

## **PA-HART Logistics Officer**

- Provides guidance on equipment purchases.

- Creates and maintains a log of issued equipment, inspection and maintenance cycles, and replacement cycles.
- Appointed by the Senior Strike Team Leader.

### **PA-HART Communications Officer**

- Writes and maintains comprehensive communications plan for the PA-HART program, to include internal and external communications, hand signals, and any other means of communication.
- Assists with technical issues related to radios and other communication equipment.
- PA-HART Communications Officer is appointed by the Senior Strike Team Leader.

### **SWERT (PFBC - Swiftwater Emergency Response Teams)**

- Team consisting of highly trained Waterways Conservation Officers certified as NFPA 1670 technicians in swiftwater and technical rescue.
- Force Protection: Armed PFBC Law Enforcement officers, on the ground or in the aircraft that provide security and force multiplier for rescues during HART missions.

### **PEMA Incident Management Team (IMT)**

- Filled by either PEMA employees or local agencies to support the PA-HART mission.
- Responsible for creating an Incident Action Plan (IAP) for each rescue or training event.
- File copies of all IAPs with the Division of Emergency Management at the conclusion of the event.

### **PEMA Area Coordinators:**

- Full-time employee of PEMA. There are three Area Coordinators, Eastern, Western and Central
- Perform consultative and coordinative work in assisting local government in planning, training, mitigation and emergency response efforts.
- Serves as liaison between the Division of Emergency Management and local government in the coordination of all emergency management activities related to the development of emergency preparedness, response, recovery and mitigation plans.
- Validates and vets PA-HART mission request with local Incident Commander.

### **LZ Manager:**

- Responsible for LZ marking and security, communications, and sequencing of aircraft.

### **PA-HART Technicians:**

- Ensures personal mission readiness
- Attend required training events.
- Maintain required certifications.
- Maintenance of issued PPE.
- Reports to Strike Team Leader.
- Maintain PA-HART TASK book.

### **Pilot-in-Command (PIC) (UH-60/CH-47/UH72):**

- Ensures that the aircrew and PA-HART Technicians are briefed and fully understand their responsibilities during rescue training operations, including aircraft safety and

actions in the event of an emergency.

- Ensures the aircraft is in a safe working order and is mission ready.
- Emphasizes procedural techniques for clearing, recovery, and emergency jettison or cutting of ropes and cables
- Ensures all Federal Aviation Administration and/or Army Regulations are being complied with during all operations.
- Final authority on all aircraft operations.
- Navigates the aircraft during an external load operation, rescue operation or training evolution.

### **Crew Chief/Hoist Operator (UH-60/CH47/UH72):**

- Assist the pilot in maneuvering the aircraft to a position centered over the rescuer or survivor.
- Insure intercom contact is clear and the radio switches are off prior to beginning hoist operations.
- Ensure the rescue hoist is serviceable and capable of completing mission requirements.
- Complete all before flight and preflight inspection requirements to include all power-on/functional checks I/A/W of the aircraft operator's manual/CL.
- Assist the P\* in maintaining a stable hover over the intended target by providing P\* with information regarding drift and altitude of the aircraft.
- Verify and announce that the Rescuer has performed an equipment check "safety check complete" prior to exiting the aircraft.
- Visually ensure that the survivor/rescuer is properly secured to the extraction device prior to lifting them off the ground and ensure that survivor/rescuer is free from other ground-based obstacles. Visual confirmation may be difficult. Direct communications and hand signals are an acceptable means of confirmation.
- Ensure the cabin is secure (to include patient, survivor, and all equipment) prior to calling "Clear for forward flight".



## APPENDIX B: Workers Compensation Forms



**REMEMBER:  
It is Important to Tell Your  
Employer about Your Injury**

The Pennsylvania Workers' Compensation Act provides wage loss and medical benefits to employees who cannot work and/or who need medical care as a result of a work-related injury. You should immediately report any injury or work-related illness to your employer. Your workers' compensation benefits could be delayed or denied if you do not notify your employer immediately.

The Commonwealth of Pennsylvania is self-insured for workers' compensation and pays all benefits through a third party claims administrator.

The commonwealth's workers' compensation third-party claims administrator is:

Inservco Insurance Services, Inc.  
P.O. Box 3899  
Harrisburg, PA 17105-3899  
1.800.356.0438 or 717.230.8300

Your workers' compensation coordinator is located within your agency human resources office and is available to assist with any questions you have about workers' compensation. This person is:

Deb Stump, Workers' Compensation Coordinator  
Pennsylvania Fish and Boat Commission  
P. O. Box 67000  
Harrisburg, PA 17106-7000  
717-705-7825 or dstump@pa.gov  
Self-Insured Bureau Code: 3000

The entity responsible for the Workers' Compensation Act is:

Bureau of Workers' Compensation  
1171 South Cameron Street, Room 103  
Harrisburg, Pennsylvania 17104-2501  
717.772.4447  
[www.dli.state.pa.us](http://www.dli.state.pa.us)  
Auxiliary aids and services are available upon request to individuals with disabilities.

**Remember: It is Important to Tell Your Employer About Your Injury!**

Revision 5.16.12



# Workers' Compensation Claim Form

**Instructions:** Complete the claim form and submit it to the agency workers' compensation service representative for entry to SAP (or the FROI system for independent agencies) and submission to Inservco Insurance Services, Inc., telephone number 800.356.0438. Codes are listed on the reverse side of this form.

<b>Basic Data:</b>					
Date of Report	Date of Injury	Personnel or Soc Sec Number	Injury Type <input type="checkbox"/> Inj Leave <input type="checkbox"/> Heart&Lung <input type="checkbox"/> Act 632/534 <input type="checkbox"/> Other		
<b>Employee Information:</b>					
Employee Last Name	Employee First Name	M.I.	Suffix	Date of Birth	Gender <input type="checkbox"/> M <input type="checkbox"/> F
Employee Home Address		City		State	Zip + 4
Residence County	Home Telephone Number	Married <input type="checkbox"/> Y <input type="checkbox"/> N	Number of Dependents	Employment Status	
<b>Employer Information:</b>					
Agency Number	Agency Name	Job Classification		Date of Hire	
Org Code	Organization Name	Name of Supervisor		Work Telephone Number	
Work Location Address		City	State	Zip + 4	County
<b>Injury Date Information (enter times as military time):</b>					
Time of Injury	Date of Death	Date Employer Knew	Shift Start Time	Type of Claim <input type="checkbox"/> Incident Only <input type="checkbox"/> Medical Only <input type="checkbox"/> Lost Time > 7 Days	
Last Full Day Worked	Date Disability Began	Date Returned to Work	At Same Wages? <input type="checkbox"/> Y <input type="checkbox"/> N	Occur During Overtime? <input type="checkbox"/> Y <input type="checkbox"/> N	
<b>Injury Description Information:</b>					
Injury on Employer Premises? <input type="checkbox"/> Y <input type="checkbox"/> N		If not in PA, list state	If not on premises, list address of accident		
Cause Code	Cause of injury additional information				
Injury Type Code 1	Injury Type Code 2	Type of injury additional information and severity			
Body Part Code 1	Body Part Code 2	Body part affected additional information (example, left, right, upper, lower, etc.)			
List all equipment, materials or chemicals employee was using when accident or illness occurred					
Describe how injury or illness or abnormal health condition occurred. Describe the sequence of events and include any objects or substances directly responsible. Use abbreviations and short statements to include who, what, where, why and how. The what shall be the job assignment the employee was performing when injured.					
Any tools involved? <input type="checkbox"/> Y <input type="checkbox"/> N	Any mechanical defect? <input type="checkbox"/> Y <input type="checkbox"/> N	Unsafe act? <input type="checkbox"/> Y <input type="checkbox"/> N	Unsafe condition? <input type="checkbox"/> Y <input type="checkbox"/> N	Amputation? <input type="checkbox"/> Y <input type="checkbox"/> N	
Motor vehicle accident? <input type="checkbox"/> Y <input type="checkbox"/> N	Safeguards or safety equipment provided? <input type="checkbox"/> Y <input type="checkbox"/> N		Safeguards or safety equipment used? <input type="checkbox"/> Y <input type="checkbox"/> N		
<b>Medical Information:</b>					
Panel of physicians? <input type="checkbox"/> Y <input type="checkbox"/> N	Initial treatment	Medical provider name and address			
<b>Employer Comments and Signature</b>					
Agree/disagree with description of injury? Other information about injury, including names and telephone numbers of any witnesses.					
Name of Supervisor completing form			Signature		

6.26.2012

## Injury Type Codes

01 No Physical Injury	34 Hernia	60 Dust Disease, NOC	76 VDT-Related Disease
02 Amputation	36 Infection	61 Asbestosis	77 Mental Stress
03 Angina Pectoris	37 Inflammation	62 Black Lung	78 Carpel Tunnel Syndrm
04 Burn	40 Laceration	63 Byssinosis	79 Hepatitis C
07 Concussion	41 Myocardial Infarctn	64 Silicosis	80 Other Cumulative Inj
08 Hearing Loss	42 Poisoning-General	65 Rsprrtry Dsrdrs	90 Mltpl Physical Inj
10 Contusion	43 Puncture	66 Poisn-Chem(non-mtls)	91 Mltpl Inj Phys/Psych
13 Crushing	46 Rupture	67 Poisoning-Metal	A1 Animal Bite
16 Dislocation	47 Severance	68 Dermatitis	A2 Abrasion
19 Electric Shock	49 Sprain	69 Mental Disorder	A4 Human Bite
22 Enuclation/Removal	52 Strain	70 Radiation	A5 Insect Bite/Sting
25 Foreign Body	53 Syncope/Fainting	71 Othr Occ Dse Inj NOC	A7 Lyme Disease
28 Fracture	54 Asphyxiation	72 Loss of Hearing	A8 Stab Wound
30 Freezing	55 Vascular	73 Contagious Disease	A9 Gunshot Wound
31 Hearing Loss/Imprmnt	58 Vision Loss	74 Cancer	
32 Heat Prostration	59 All Othr Spc Inj NOC	75 AIDS	

## Body Part Codes

10 Multiple Head Injury	24 Larynx	41 Upr Bck Area(Thrcic)	55 Ankle
11 Skull	25 Neck - Soft Tissue	42 Lw Bck Area(Lbr&Lbo)	56 Foot
12 Brain	26 Trachea	43 Back/Disc	57 Toe(s)
13 Ear(s)	30 Mltple Upr Extrmtes	44 Chest(Ribs&Sft Tsue)	58 Great Toe
14 Eye(s)	31 Upr Arm(Clvccl-Scpla)	45 Sacrum and Coccyx	60 Lungs
15 Nose	32 Elbow	46 Pelvis	61 Abdomen incl Groin
16 Teeth	33 Lower Arm	47 Back - Spinal Cord	62 Buttocks
17 Mouth	34 Wrist	48 Internal Organs	63 Lumbar/Sacral Vertbr
18 Head - Soft Tissue	35 Hand	49 Heart	64 Artificial Appliance
19 Facial Bones	36 Finger(s)	50 Mltple Lwr Extrmtes	65 Insf Info 2 Prop Id
20 Neck - Multiple Inj	37 Thumb	51 Hip	66 No Physical Injury
21 Vertebrae	38 Shoulder	52 Upper Leg	90 Multiple Body Parts
22 Neck - Disc	39 Wrist(s) and Hand(s)	53 Knee	91 Bdy Sys/Mtpl Bdy Sys
23 Neck - Spinal Cord	40 Multiple Trunk	54 Lower Leg	

## Cause Codes

01 Burn-Acid Chem	26 Fall/Slip-Ladder	58 Strain/Inj By-Reach	86 Inj By-Explosion
02 Burn-Cntct w/ Object	27 Fall/Slip-Liquid	59 Str/Inj By-Tool/Mach	87 Forgn Matter in Eye
03 Burn-Temp Extremes	28 Fal/Slp-Into Opening	60 Strain/Inj By-Misc	89 Misc-Person/Crime
04 Burn-Fire or Flame	29 Fall/Slip-Same Level	61 Strain/Inj By-Throw	90 Other than Phys Caus
05 Burn-Steam/Hot Fluid	30 Slip-Did Not Fall	65 Step/Strik-Machine	94 Rub/Abraid-Rept Motn
06 Burn-Dst/Gas/Fms/Vpr	31 Fall/Slip-Misc	66 Step/Strk-Obj Handld	95 Rub/Abraid-Misc
07 Burn-Welding	32 Fall/Slip-Ice/Snow	67 Step/Strik-Scraping	97 Strain-Reptiv Motion
08 Burn-Radiation	33 Fall/Slip-On Stairs	68 Step/Strk-Statnry Ob	98 Misc-Cumulative
09 Burn-Miscellaneous	40 Motr Veh-Water Veh	69 Step/Strik-Sharp Obj	99 Misc-Other
10 Caught In-Machinery	41 Motr Veh-Train	70 Step On/Strike-Misc	A2 Exp Misc Viral Infec
11 Burn-Cold Obj/ Subst	45 Motr Veh-Veh Colison	74 Struck-Cowrker/Other	A3 Heat Exhaust/Stroke
12 Caught In-Obj Handld	46 Motr Veh-Hit Fxd Obj	75 Struck-Fall/Fly Obj	A4 Exp to Skin Irritant
13 Caught In/Betwn-Misc	47 Motr Veh-Airplane	76 Struck-Tool/Machine	A5 Gunshot Wound
14 Brn-Abnml Air Presur	48 Motr Veh-Veh Upset	77 Struck-Motor Veh	A6 Human Bite
15 Cut/Inj By-Brkn Glas	50 Motr Veh-Misc	78 Struk-Machine In Use	A7 Exposure to TB
16 Cut/Inj By-Hand Tool	52 Strain/Inj By-Noise	79 Struck-Obj Handled	A8 Exp to Hepatitis B
17 Cut-Obj Liftd/Handld	53 Strain/Inj By-Twist	80 Strk-Obj Hndl by Oth	A9 Exposure to HIV
18 Cut/Inj By-Powr Tool	54 Strain/Inj By-Jump	81 Sruck/Inj By-Misc	B1 Microbiological Exp
19 Cut/Inj By-Misc	55 Strn/Inj-Hold/Carry	82 Misc-Absorb/Ingest	
20 Caught In-Collapse	56 Strain/Inj By-Lift	84 Electrical Current	
25 Fall/Slip-Diff Level	57 Str/Inj By-Push/Pull	85 Inj By-Anmal/Insct	

**Instructions:** This form should be completed by anyone who observed an incident that caused or could have caused a work-related injury. Statements will be used to identify the primary causes of the incident so that corrective actions can be identified to prevent future, similar injuries from occurring. The completed form should be provided to the incident investigator to include with the *Incident Investigation Report*.

<b>Injury Data</b>			
Injured Employee Name	Personnel Number	Date of Accident	Today's Date

What acts, failure to act, or conditions contributed to the accident?

Explain what you saw or heard

What type of injury occurred to the employee?

Additional comments and information

**Verification**

I verify that the statements listed above are my own and accurately describe what I observed or heard.

Name	Phone number or email address
Signature	Date

# APPENDIX C: U.S. ARMY AEROMEDEVAC Summary Sheet (UH60/CH47)

DEPARTMENT OF THE ARMY  
U.S. ARMY PATHFINDER SCHOOL  
THE ARMY NATIONAL GUARD WARRIOR TRAINING CENTER  
FORT BENNING, GEORGIA 31905

ATZB-RCG

1 October 2009

## AEROMEDEVAC SUMMARY SHEET:

**INSTRUCTIONAL INTENT:** The Pathfinder student will learn the aircraft configurations, capabilities, equipment needed and the Nine-Line Aeromedevac Request used for aeromedevac operations.

### 1. DEFINITIONS:

**MEDEVAC-** The movement and en route care by **medical personnel** of wounded, injured or ill persons from the battlefield and/or other locations to a Medical treatment facility.

**CASEVAC-** Is the movement of casualties aboard non-medical vehicles or aircraft. Casualties transported in this manner do not receive en route medical care.

**LITTER-** A casualty who is either unable to move under their own power or has been immobilized to facilitate medical treatment.

**AMBULATORY-** A casualty who is able to move on their own, the walking wounded.

### 2. ARMY AIRCRAFT DESIGNED FOR MEDEVAC:

- A. **UH-1V:** Red Cross Markings: 4 one on the nose, belly, and each cargo door. Crew of 2 pilots, 1 crew chief and 1 medic. Standard configuration is 3 litters and 4 ambulatory. The maximum configuration is 6 litters or 9 ambulatory.
- B. **UH-60Q:** Red Cross Markings: 5 one on the nose, belly, one on each cargo door and one on top. Same crew as the UH-1V. Standard configuration is 4 litters and 1 ambulatory. The maximum configuration is 6 litters and 1 ambulatory or 7 ambulatory or some configuration thereof.
- C. **CH-47:** This aircraft has no Red Cross markings. The primary mission of this aircraft is "Mass Casevac". Crew of 2 pilots, 1 crew chief, 1 flight engineer, and 1 medic for every 6 litter patients. The standard configuration is 16 ambulatory and 12 litters. The maximum configuration is 31 ambulatory or 1 ambulatory and 24 litters.

### CONFIGURATION

<u>AMBULATORY</u>	<u>LITTER</u>
31	0
25	4
19	8
16	12
10	16
4	20
1	24

**\*NOTE:** The capacity of all aircraft may be reduced because of temperature, humidity or age of the aircraft. Any aircraft may be used for casevac.

2. **THE MISSION OF AEROMEDEVAC, ADVANTAGES AND DISADVANTAGES:**

A. **MISSION:**

- 1) The primary mission of aeromedevac is to move casualties to an area where they can receive proper medical care.
- 2) Medevac aircraft may be used to move personnel and equipment (to include whole blood and biologicals).
- 3) Because of the specialized equipment on board a medevac aircraft, it may be used for crash rescue.

B. **ADVANTAGES OF AEROMEDEVAC:**

- 1) Flexibility
- 2) En route treatment
- 3) Speed

C. **DISADVANTAGES OF AEROMEDEVAC:**

- 1) Weather and limited visibility
- 2) Enemy situation
- 3) Limited / priority aircraft

D. **RESPONSIBILITIES OF THE REQUESTING UNIT:**

- 1) Lighting and marking the pick-up site
- 2) Tactical support and security
- 3) Patient preparation and consolidation
- 4) Assignment of litter teams to load the aircraft
- 5) Brief the pilot of the enemy situation and any other units in your area of operations if asked
- 6) Mark friendly positions when an armed escort is required
- 7) Have an English speaking representative present for non U.S. personnel
- 8) Guide in aircraft (GTA / Signalman)

3. **THE STANDARDIZED NINE-LINE MEDEVAC REQUEST:**

- A. **Line #1:** 6 digit grid coordinate of the pick-up site to include the grid zone identifier.
- B. **Line #2:** Radio frequency, call sign and suffix of the requesting unit.
- C. **Line #3:** Number of patients by precedence.

- 1) The purpose of classifying patients by precedence is so that the medevac element can establish a priority as to which patients are to be evacuated first. Normally, time is a factor, which determines the categories of precedence.
  - 2) There are four priorities of precedence:
    - a) **Urgent:** Is assigned to emergency cases that should be evacuated as soon as possible and within a maximum of 2 hours to save life, limb or eyesight, to prevent complication of serious illness, or to avoid permanent disability.
    - b) **Urgent-Surgical:** Is assigned to patients who must receive far forward surgical intervention to SAVE LIFE and stabilize for permanent evacuation. These patients need to be evacuated within a maximum of 2 hours.
    - c) **Priority:** Is assigned to sick and wounded personnel requiring prompt medical care. This precedence is used when the individual should be evacuated within 4 hours or his/her condition could deteriorate to such a degree that he will become an Urgent precedence, or whose requirements for special treatment are not readily available locally, or who will suffer unnecessary pain or disability.
    - d) **Routine:** Is assigned to sick and wounded personnel requiring evacuation but whose condition is not expected to deteriorate significantly. The sick and wounded in this category should be evacuated within 24 hours.
    - e) **Convenience:** Is assigned to patients for whom evacuation by medical vehicle is a matter of medical convenience rather than necessity.
- D. **Line #4:** Special equipment needed:
- 1) **Aircraft Rescue Hoist:** Utilized on the UH-1, UH-60 and the CH-47. The cable is 256 feet long with 250 feet of usable cable, with a tensile strength of 600 pounds. The hoist has two settings. A fast and a slow setting; the fast setting can lift 300 pounds at 250 feet per minute, the slow setting can lift 600 pounds at 125 feet per minute.
  - 2) **Jungle / Forest Penetrator:** When a landing zone is not available or vegetation is too dense, a Jungle/Forest penetrator can be attached to the rescue hoist. The Penetrator is limited to three (3) casualties during wartime (2 in training environment) or 600 pounds. The Jungle/Forest Penetrator weighs 21 1/2 lb., is 34 in. long and 8 in. in diameter. The three legs are 11 1/2 in. long and 4 3/4 in. wide.
    - Allow the penetrator to touch the ground to discharge any built up static electricity.
    - Fold down only wing seats necessary and snap into place.
    - Unzip one of the protective covers containing a safety strap, remove the strap, placing it around the patient's back and under their armpits.
    - Signal the aircrew when the patient is ready to be lifted.
  - 3) **Semi-Rigid Litter:** Used for evacuating casualties with other than back injuries. Limited to one 1 casualty or 400 pounds.
  - 4) **Stokes Basic Litter:** Used in conjunction with the aircraft rescue hoist over land and water for casualties with injuries to include neck and back injuries requiring immobilization. Is constructed of aluminum or steel framed basket and is 84 in. long, 23 in. wide, and weighs 31.5 lbs. It is limited to 1 casualty or 400 lbs.

- a. To prepare a patient for rescue via the Stokes Basic Litter, the ground personnel must:
  - Allow the SBL to touch the ground to discharge any built up static electricity.
  - Unhook the litter(s) from the helicopter.
  - Move the suspension cables to the sides of the litter and unfasten the restraining straps.
  - Place the patient in the litter and fasten the restraining straps.

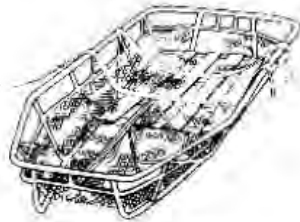
**CAUTION: PATIENT MUST BE REMOVED FROM THE STANDARD OR IMPROVISED LITTER PRIOR TO BEING PLACED IN THE STOKES BASIC LITTER.**

- Bring the lift rings to the center position and fasten them to the helicopter rescue hoist hook. Signal the hoist operator when ready to lift. Be prepared to steady the litter to prevent oscillation until it is out of reach.
  - 5) **Kendrick Extrication Device (KED):** Semi-rigid support used to immobilize casualties with minor neck and back injuries, same limitations as the Stokes Basic Litter.
  - 6) **Skedco Rescue System:** Compact mobile support used for ground evacuation, set down missions, water rescue, and hoist extractions. Same limitations as the Stokes Basic Litter.
- E. **Line #5:** Number of patients by type:
- 1) Litter patients
  - 2) Ambulatory patients
- F. **Line #6:** Line #6 is broken into two (2) situations; wartime and peacetime.
- 1) **Wartime Situation: Security of the Pickup Zone**
    - a. (N) No enemy troops in the area
    - b. (P) Possible enemy troops in the area
    - c. (E) Enemy in the area, approach with caution
    - d. (X) Enemy troops in the area, armed escort required
  - 2) **Peacetime Situation: Type of injury**
    - a. Gunshot, shrapnel
    - b. Broken bones
    - c. Illness
- G. **Line #7:** Method of marking the site.
- H. **Line #8:** Patient nationality and status
- 1) U.S. Military
  - 2) U.S. Civilian
  - 3) Non U.S. Military
  - 4) Non U.S. Civilian
  - 5) Prisoner of War
- I. **Line #9:** Like line #6, line #9 has two (2) situations; wartime and peacetime.



- 1) **Wartime Situation:** NBC contamination - Report RADS/Hour or type agent used, if known, in the area of the pick-up site.
  - 2) **Peacetime Situation:** Description of the terrain in and around the pick-up site to aide the pilot in locating your site.
- A. **Guidelines for loading patients:** Patients are normally loaded from the top tier to the bottom tier with the most seriously injured loaded last.
- 1) Litter patients should be positioned in the helicopter according to the nature of their injuries or conditions. Personnel aboard the helicopter supervise the loading and positioning of the patients.
  - 2) The most seriously injured patients must be on the bottom tiers to permit the onboard medical personnel to provide the necessary in-flight care.
  - 3) Litter patients requiring IV fluids should be positioned as low as possible on the litter rack.
- B. **Loading and securing patients:**
- 1) In loading six litter patients with a 4-man litter squad, the litters are loaded from both sides of the aircraft and from top to bottom.
  - 2) When the helicopter is equipped for mixed loading, 3 litters are loaded crosswise and 4 ambulatory patients are loaded in the side seats.
    - a. When loading from the left, the litter squad moves to the left side of the helicopter with the litter perpendicular to the cargo compartment, then the squad moves onto the post litter carry. Numbers 1 and 3 give their litter handles to the aircrew whom place the handles in the litter support brackets on the far left side of the aircraft. Numbers 2 and 4 secure the foot of the litter.
    - b. After the first litter is loaded, the squad leaves the helicopter as a team to obtain another litter patient. The second and third litters are loaded in the same way as the first one. After the three litter patients are loaded, the ambulatory patients are loaded. The ambulatory patients are taken to the aircraft and placed in their seats.
- C. **Unloading patients:** The aircraft is unloaded in the reverse order of the loading process. The tiers are unloaded from the bottom to the top on one side and then the other. At the unloading command, the litter squad moves to the helicopter and the bearers take their proper place at the litter. Then each member of the squad then performs his duties in reverse order of the loading sequence.

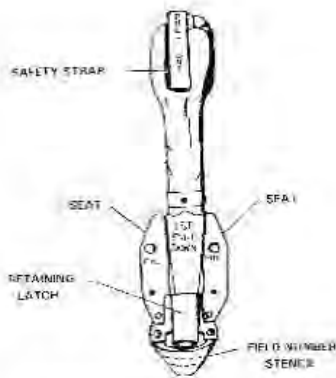
**REFERENCES:**  
**FM 3-21. 38**  
**FM 8-10-6**  
**FM 4-02.2**



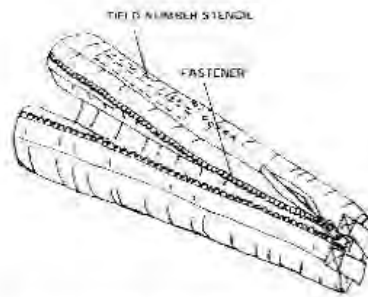
**STOKES BASIC LITTER**



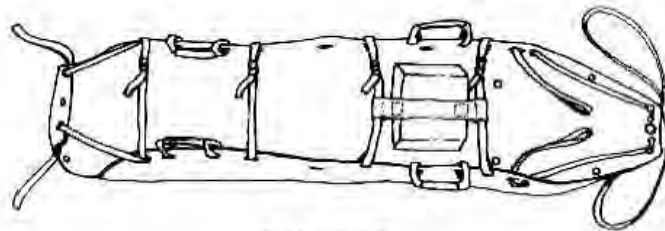
**HOOKING THE STOKES LITTER TO THE RESCUE HOIST**



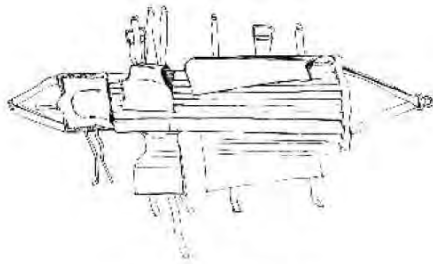
**FOREST/JUNGLE PENETRATOR**



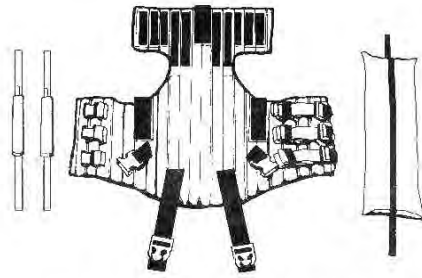
**FL OTATION COLLAR FOR THE FOREST/JUNGLE PENETRATOR**



**SKED LITTER**



SEMI-RIGID LITTER



KENDRICK EXTRICATION DEVICE

## Appendix D: PA-HART Dispatch Procedure

# **PA-HART DISPATCH PROTOCOL**

### **MISSION STATEMENT**

The Pennsylvania Helicopter Aquatic Rescue Team (PA-HART) is a joint partnership between the Pennsylvania Army National Guard (PANG), the Pennsylvania Fish and Boat Commission (PFBC), and the Pennsylvania Emergency Management Agency (PEMA) along with civilian rescue technicians. This highly specialized aerial search and rescue team provides an air asset for the Commonwealth of Pennsylvania and the nation to respond to natural and manmade disasters incidents. Team members receive technical training that prepares them to engage in hostile environmental conditions in both urban and wilderness settings. PA-HART members risk their lives so that others may live.

### **ACTIVATION**

1. The (Chief or IC) makes a request to a County 911 Center requesting PAHART- a highly specialized aerial search and rescue operation team which includes hoisting operation.
2. The County 911 Center calls the Commonwealth Response Coordination Center (CRCC) to make a request for PAHART.
3. The CRCC calls PFBC Lead EPLO (Order of Call Out as listed below) and the Joint Emergency Operation Center (JEOC) at 717-861-8193 to make the request for PAHART and notifies PEMA of the PAHART request. Initiates conference call.
4. The JEOC calls the State Army Aviation Officer (SAAO). The SAAO then acquires information from the Army Aviation Site Facility (AASF) to see if the mission request can be fulfilled within the required response time. The SAAO will notify the JEOC whether the mission can be supported or not, then the JEOC will relay the message to the CRCC.
5. The SEOC places a Staff Alert/State 800 message advising PAHART staff/military of the pending mission and mission number.
6. Approval is required from the SAAO to launch the air mission. PAHART can move by ground once PFBC Lead EPLO accepts mission.

### **ORDER of CALL OUT**

1. COL Corey Britcher (Lead EPLO) – 717-226-1127
2. LTC Larry Furlong (EPLO) – 717-480-7059
3. Ryan Walt (EPLO) - 717-877-4444
4. LTC Donald Lauver (EPLO) – 717-226-3368
5. CPT Thomas Burrell (EPLO) – 717-226-3402
6. Scott Grahn - 412-913-7107 or 412-651-6894
7. Chris Calhoun - 724-991-1003
8. Mike Kurtz - 717-648-9961
9. Joel Landis – 814-483-0189

## Appendix E: PFBC SWERT Force Protection Document

**COMMONWEALTH OF PENNSYLVANIA**  
**PENNSYLVANIA FISH & BOAT COMMISSION**  
**BUREAU OF LAW ENFORCEMENT**  
***SWERT Force Protection***

### **PURPOSE:**

The PA Fish and Boat Commission's Bureau of Law Enforcement Swiftwater Emergency Response Team (SWERT) has been developed to aid and assist the residents of the Commonwealth during man made or natural disaster related emergencies. The team will only be activated by order of the Colonel or through a Pennsylvania Emergency Management Agency (PEMA) request to the Colonel's office by providing assets throughout the Commonwealth with the ability to respond and rescue in a multitude of emergency situations involving water or ice.

In conjunction with PEMA and the Pennsylvania Army National Guard (PANG), PFBC BLE SWERT has taken the role of Force Protection for all Pennsylvania Helicopter Aquatic Rescue Team (PAHART) missions. During these missions, SWERT members will provide safety and security both on the ground and in the air, protecting all HART assets.

There is no more important responsibility than force protection. Force protection demands personal involvement of commanders and must be fully integrated into every mission to ensure the best possible security consistent with the threat to personnel and mission-essential resources. A commander must continually review the unit's force-protection posture and crosswalk it with current and changing policy and threat levels.

Force Protection represents the programs, processes and procedures that are designed to protect military members, civilian employees, family members, facilities and equipment. Force Protection is accomplished through the planned and integrated application of law enforcement from the PA Fish and Boat Commission's Swiftwater Emergency Response Team.

Force protection consists of techniques that prevent or mitigate hostile actions against personnel, resources, facilities, and equipment. It coordinates and synchronizes offensive and defensive law enforcement measures to enable the joint force to perform its lifesaving mission.

### **DEFINITIONS:**

- A. SWERT ;(Swiftwater Emergency Response Team), A team consisting of highly trained Waterways Conservation Officers certified as NFPA 1670 technicians in the following;
  - 1. Water Rescue for the First Responder – 1670 Awareness Level
  - 2. Water Rescue & Emergency Response – 1670 Operations Level
  - 3. Emergency Boat Operations & Rescue – 1670 Technician Level
  - 4. Advanced Line Systems & Rescue – 1670 Technician Level
  - 5. Ice Rescue & Emergency Response – 1670 Technician Level
- B. PA HART, (Helicopter Aquatic Rescue Team) A combined effort between the PFBC, PANG and PEMA which provides air support that may be used to effect rescues by;
  - 1. Hoist qualified rescue technicians being lowered to the ground or water.
  - 2. Transporting equipment and personnel.
- C. Force Protection: Armed PFBC Law Enforcement officers, on the ground or in the aircraft that provide security and force multiplier for rescues during HART missions.

**DUTIES:**

Performs force protection duties to protect personnel and resources. Controls and secures mission specific terrain inside and outside military installations. Protects personnel, equipment and resources from criminal activity. Operates in various field environments, performs individual and team patrol movements, tactical drills, convoys, operations and other special duties. Operates communications equipment, vehicles, rescue boats, and other special purpose equipment. Applies self-aid buddy care, lifesaving procedures, including cardiopulmonary resuscitation, as first responder to accident and disaster scenes.

Provides security and controls entry. Detects and reports presence of unauthorized personnel and activities. Enforces Pennsylvania law in relation to mission. Directs vehicle and pedestrian traffic. Apprehends, detains and searches persons and property. Conducts interviews of witnesses and suspects. Obtains statements and testifies in official judicial proceedings. Responds to disaster and relief operations. Participates in contingencies.

**TRAINING:**

Training will always include proper security of areas during flight time whether from ground or air. Advanced training includes hoist training for insertion into areas where rescue technicians should be protected as well as securing landing zones prior to the aircraft touching down.

**EQUIPMENT:**

All issued personal protective equipment is carried in patrol vehicles at all times to be ready for training, meeting or emergency activations.

## Notes