



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

REPLY TO
ATTENTION OF:

CESO

1 July 2007

MEMORANDUM FOR Commanders/Directors, Major Subordinate Commands, District Commands, Centers, Laboratories and Field Operating Activities

SUBJECT: Authorization of Automatic-Inflatable Personal Flotation Device (PFD) Use by USACE Employees


1. The use of U.S. Coast Guard-approved (for commercial use) automatic-inflatable personal flotation devices (PFDs) as optional personal protection equipment by USACE employees is authorized in accordance with the enclosed Standard Operating Procedure (SOP) dated 1 July 2007.
2. EM 385-1-1, 3 Nov 03 prohibits the use of auto-inflatable PFDs by all workers on USACE worksites. This authorization memorandum will lift this prohibition for use of these PFDs by USACE employees. An Interim Change to EM 385-1-1 will be issued and posted on CESO's website. Once posted, this change will apply to both USACE and contract workers on USACE worksites.
3. This authorization follows careful analyses and tests by USACE of several types of automatic-inflatable devices labeled U.S. Coast Guard-approved for commercial use. These PFDs were tested in practical work settings for performance, as well as associated maintenance and financial burdens of use. The field testing included 347 participants from the Operations business line that included park rangers, maintenance personnel (navigation, hydropower), lock operators, boat operators, crane operators, engineers, equipment operators, biologists and others. Every participant experienced at least one deployment of the PFD, as well as training in maintenance, storage and use.
4. The enclosed SOP identifies performance and safety criteria for the automatic-inflatable PFDs approved for use by USACE employees. Several specific types of these PFDs meeting these criteria are identified to assist with purchasing. The PFDs may only be used under the direction provided in the SOP. Only those Type III and V auto-inflatable PFDs listed in the SOP are approved for purchase and use at this time. CESO will insure that additional types/makes are reviewed annually for use by USACE employees. A local determination may NOT be made as to whether other types are approved or not.
5. Specific requirements are associated with auto-inflatable PFDs, including the completion of an Activity Hazard Analysis (AHA) and a Position Hazard Analysis (PHA) prior to maintenance and use training and subsequent individual employee authorization to utilize the inflatable PFD.

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6. We appreciate the efforts of everyone that participated in the testing program for these PFDs. It was obvious that each volunteer's desire was to better the USACE safety and occupational health program by making it possible to include new, updated and innovative equipment that will, in the long run, give our employees more options for personal protective equipment with which to protect themselves. Commanders need to insure their labor relations obligations are fulfilled and notify their local union officials of this change. Questions related to this matter should be directed to Ellen B. Stewart, CSP, Senior Safety Engineer at (202) 761-8565.

FOR THE COMMANDER:


for RICHARD L. WRIGHT, CIH
Chief, Safety and Occupational
Health Office

Encl

AUTOMATIC-INFLATABLE PERSONAL FLOTATION DEVICE
STANDARDS OF USE FOR USACE EMPLOYEES

1. Purpose. This document provides requirements for U.S. Army Corps of Engineers employee use of U.S. Coast Guard-approved for commercial operations, automatic-inflatable Personal Flotation Devices (PFDs).

2. Applicability. These requirements apply to USACE personnel working on, over or near water where risk of drowning exists.

3. References.

a. EM 385-1-1, Safety and Health Requirements Manual, Section 05.H

b. Chief, Safety and Occupational Health Office Memorandum, dated 25 May 2007, Approval of Automatic-Inflatable Personal Flotation Device (PFD) Use by USACE Employees

4. Background. This policy is a result of recommendations from the HQUSACE Safety Office and the Auto-Inflatable PFD Product Delivery Team (PDT), following a series of design and reliability tests, in addition to approval of certain models of auto-inflatable PFDs for commercial application by the U.S. Coast Guard and Underwriters Laboratories (UL).

5. Policy. USACE employees may be authorized to wear auto-inflatable PFDs meeting criteria specified in Paragraph 5.d. below, in accordance with the policy contained in this document.

a. General.

(1) Per EM 385-1-1, Section 05.H all employees are required to wear PFDs for personal protection while working on, over or near water where risk of drowning exists. However, per section 05.H, auto-inflatable PFD use on USACE work sites is prohibited.

(2) This approval for use of auto-inflatable PFDs devices changes the requirements and/or prohibitions of EM 385-1-1 (3 November 2003). Wording in the EM 385-1-1 will be changed to reflect this approval.

b. Criteria of Use.

(1) Auto-inflatable personal flotation devices (PFDs) require a higher level of wear and maintenance responsibility than inherently buoyant PFDs. Approval for use shall be reviewed individually by supervisor and employee. Supervisory approval to use the auto-inflatable PFD as Government-issued personal protective equipment is required. Approval shall be based on a Position Hazard Analysis (PHA) and an Activity Hazard Analysis (AHA) prepared in advance of use and maintained on file with the project and District safety office. Auto-inflatable PFDs will not be allowed for use in heavy construction, maintenance, or other work areas in which there is a high likelihood of damage to the vest, including puncturing, burns or excessive abrasion, as identified in the AHA.

(2) The U.S. Coast Guard and auto-inflatable PFD manufacturers recommend that these PFDs be worn only by persons having the ability to swim due to the fact that they possess no inherent buoyancy.

(3) Employees opting to use auto-inflatable PFDs must be trained in use, maintenance and general care of their auto-inflatable PFD. In addition, HQUSACE Safety Office requirements (per this memorandum), U.S. Coast Guard and PFD manufacturer's instructions for use, care and storage of the auto-inflatable PFDs shall be followed. Participants will be trained in both the automatic and manual inflation techniques, as well as the mouth inflation feature that will aid in flotation following deployment.

c. Hazard Analysis Process. In accordance with paragraph 5.b (1) above, a comprehensive Position Hazard Analysis and Activity Hazard Analysis shall be developed to justify which positions/jobs warrant authorization for approval of use. These analyses must identify and address high-risk activities where substitution of auto-inflatable PFDs for inherently buoyant PFDs should not be permitted, i.e., during welding activities or where damage to the device that could diminish performance is likely to occur. Attached documents provide sample guidance to assist districts and project offices in conducting a PHA and associated project AHA as per EM 385-1-1, Safety and Health Requirements Manual. The preparation of the PHA and AHA is the responsibility of the supervisor. Originals shall be kept on file at the project office and copies filed with the District safety office for reference.

(1) Position Hazard Analysis. A PHA must be prepared to identify the position and associated duties that may warrant the use of auto-inflatable PFDs.

(2) Activity Hazard Analysis. Managers who have identified employees via the PHA must prepare a project AHA for each duty listed in the PHA.

d. Equipment Standards.

(1) Only auto-inflatable PFD models meeting the following criteria are approved for use. **Exceptions to these standards are not authorized.**

(a) U.S. Coast Guard-approved for Commercial Use

(b) Thirty (30)-pound buoyancy minimum post-deployment

- (c) Auto-inflatable PFD with manual back-up feature for inflation in the event the automated device fails
- (d) Auto-inflation deployment reaction within 5-seconds
- (e) Face-up rollover capability, reaction within 5-seconds
- (f) Outer shell must be a highly visible orange/reddish color; PFD bladder can be yellow
- (g) Minimum of 200 square inches of retro-reflective tape, visible post-deployment
- (h) Equipped with one of two approved CO² inflator types:
 1. Halkey-Roberts 1F inflator
 2. Hammar MA-1 inflator

(2) Three known models that meet these minimum equipment standards are:

- (a) Stearns Model #1470 with Halkey-Roberts 1F inflator and appropriate re-arm kit
- (b) Mustang Model #MD3087 with Halkey-Roberts inflator and appropriate re-arm kit
- (c) Mustang Model #MD3183 with Hammar MA-1 inflator and appropriate re-arm kit

e. Maintenance of Auto-Inflatable PFDs.

(1) Employees approved to use auto-inflatable PFDs will be personally responsible for the care, security and maintenance of his/her Corps-procured auto-inflatable PFD. Failure to properly follow use, maintenance and storage requirements and guidance will be cause for supervisory authorization to be withdrawn and equipment removed from the employee's use.

(a) A system of routine visual inspections of the device, particularly before each use, shall be established. Maintenance inspections shall be conducted per manufacturer's requirements.

(b) Maintenance inspection shall include visual check of CO² cartridge, as well as the cartridge device, inflatable bladders, break-away closures, manual pull cords, and durability of the fabric. The inflator CO² cartridge shall be replaced after the deployment, once the device is properly dried and prior to next intended use.

(c) Following any incident of deployment, the auto-inflatable device shall be properly repackaged, re-armed and ready for use. Employees shall be trained in the steps required to prepare the PFD for reuse, including:

- General device inspection (bladders, deployment device, cords, breakaway closures)
- Installation of a fresh CO² cartridge

- Properly drying the internal bladders and the inflator component of the PFD before repackaging
- Folding bladders properly and securing breakaway closures (Velcro or zipper)
- Assuring green "ready" indicator is viewable through device window

SAMPLE POSITION HAZARD ANALYSIS

JOB SERIES: 0025	JOB TITLE: Park Ranger		
EMPLOYEE NAME (Please Print):		OFFICE SYMBOL:	
EMPLOYEE SIGNATURE:			DATE:
ANALYZED BY (Immediate Supervisor):			DATE:
REVIEWED BY (Safety Office):			DATE:

	YES	NO
Is employee in the Medical Surveillance Program?	<input type="checkbox"/>	<input type="checkbox"/>
Is employee required to wear personal protective equipment (i.e., safety boots or glasses, respirators, hearing protection, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>
Does employee require safety training (i.e., HTRW, confined space, HAZCOM, respirator, electrical, hearing)?	<input type="checkbox"/>	<input type="checkbox"/>

ACTIVITY	LOCATION	HAZARD	CONTROLS
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Office work		Eye strain	Ensure proper lighting. Ensure computer monitor and document copy stand are at approximately the same height and distance. Reduce computer screen glare by installing anti-glare/anti-static screens.
		Wrist strain	Ensure computer keyboards are adjusted so that the elbows are at a 90-degree angle and arms and hands are parallel to the floor. Use wrist rests or other support so that wrists are maintained in a neutral position.
		Neck/shoulder fatigue	Ensure video display terminals are properly adjusted so that the top of the screen is slightly below eye level and the screen is between 18 and 28 inches away. Document or copy holders should be at the same height and distance as the screen.
		Slips/trips/falls	Use good housekeeping practices. Secure tripping hazards (cords) to floor. Do not leave file drawers open when unattended.
		Lifting	Use proper lifting techniques. Get assistance when necessary. When lifting, keep the load close to the body and lift with the legs.
		Electrical shock	Do not reconfigure wiring in systems furniture panels. Ensure equipment is properly maintained and grounded. Protect electrical cords from damage by using cord covers. Do not overload outlets.
		Office machinery	Do not wear loose clothing or jewelry. Be cautious when making Mylar copies (hot).
		Walking	Be alert of walking surface, wear flat shoes.
		Cutting tools	Cut in the direction away from hands and body.
		File cabinets/shelves	To avoid tipping, fill the bottom file/shelf first. Do not open more than one drawer at a time. Place heavy objects in the bottom drawers/shelves.

ACTIVITY	LOCATION	HAZARD	CONTROLS
Field inspections and investigations	Field and construction locations	Compressive foot injuries	Wear appropriate safety shoes/boots that meet ANSI Z 41.
		Ankle and leg injuries	Wear proper field boots with ankle and leg protection.
		Head injuries	Wear hardhat when exposed to overhead hazards. Hardhats are required to be worn at all times when in Hard Hat Areas.
		Eye injuries	Wear appropriate eye protection as necessary.
		Hand injuries	Wear appropriate gloves as necessary.
		Exposure to hazardous wastes	Wear appropriate level of protective clothing and equipment. Be knowledgeable of procedures to follow when on hazardous waste sites. Maintain certification in accordance with 29 CFR 1910.120.
		Noise	Wear proper hearing protection devices.
		Slips/trips/falls	Use good housekeeping practices. Be observant of walking/working surfaces. Wear proper field boots and be observant of terrain. Use safety lines when necessary.
		Working in confined spaces	Know signs and symptoms of oxygen deficient and poisonous/explosive gases. Have available and use, when necessary, air monitoring meters, respirator gas mask and/or portable air supply. Know and understand rescue and evacuation procedures.
		Loss of extremities	Wear clothing that will not get caught in machinery. Do not wear jewelry.
		Working over water	Wear lifeline and harness, and life jacket.
		Potential fall of over 6 feet	Use positive fall protection.
		Working in confined spaces	Know signs and symptoms of oxygen deficient and poisonous/explosive gases. Have available and use, when necessary, respirator gas mask and/or portable air supply. Know and understand rescue and evacuation procedures.
		Cutting/grinding/chipping, sawing	Wear appropriate protective clothing (headwear, goggles, hearing protection, gloves, boots, and leg guards). Ensure equipment is properly guarded. Use correct cutting techniques. Ensure all airline joints are correct and are properly secured.
		Working around suspended loads	Do not enter an area within the radius of swing when there is a suspended load. Obey posted warning signs. Be alert for and obey verbal instructions from the designated signal person. Ensure that persons conducting the lift are using proper equipment and procedures.
		Snake bites	Wear proper field boots or snake chaps. Do not harass/kill snakes.
		Animal bites	Wear proper clothing. Do not approach animals. Use caution and composure when encountering animals.
		Insect bites and stings	Knowledge and avoidance of such insects. Caution and knowledge of any allergies to such bites or stings. Do not wear perfume or cologne. Know where to obtain first aid.
		Poisonous plants	Knowledge and avoidance of such plants. Wash after contact.
		Trenches/excavations	Stay out of unsupported trenches. All trenches/excavation

ACTIVITY	LOCATION	HAZARD	CONTROLS
			shall be evaluated and shored accordingly. Be familiar with egress points and evacuation plan.
		Fumes and dust	Ensure proper ventilation and wear respirator if necessary.
		Welding burns/flash	Avoid welding operations. When exposure is unavoidable, wear proper clothing, gloves, and safety goggles.
		Hazardous/flammable chemicals	Obey manufacturer's handling, storage, and use recommendations. Read Material Safety Data Sheet for specific hazards before use.
		Moving equipment	Keep alert and out of the way of heavy equipment.
		Wildfires and controlled burns	Personal shall be trained and wear appropriate fire-resistant clothing, gloves, goggles and respirator as needed.
Visitor Assistance		Public contact	Ensure personal trained in Blood Borne Pathogens procedures, First Aid/CPR, Verbal Judo and have proper Personal Protective Equipment.
		Pepper Spray	Ensure that personal have been trained in use and responsibilities of carrying pepper spray.
		Exposure to the elements	Wear proper clothing. Be aware of exposure duration and limit duration if necessary. Be knowledgeable of the symptoms of exposure related illnesses.
Boat Patrol, Work barge	Boat or Personal Water Craft Operation	Drowning, weather, submerged objects	Wear life vest, know where life saving equipment is located. Ensure that personal operating the craft have completed an approved operators licensing course.
		Slips/trips/falls	Wear proper footwear. Maintain good housekeeping. Remove grease and oil from working surfaces. Stumbling hazards will be painted yellow and slippery deck areas will be coated with an anti-skid surface.
		Exposure to the elements	Wear proper clothing. Be aware of exposure duration and limit duration if necessary. Be knowledgeable of the symptoms of exposure related illnesses.
Travel	City, Highway and Secondary roads	Motor vehicle accidents	Obey traffic laws. Adjust vehicle operation to road and weather conditions. Employ defensive driving techniques. Complete defensive driver training once every 4 years.
		Uneven surfaces	Reduce speed appropriately.
		Deer and other wildlife	Stay alert, use caution, and drive defensively.
		Dust	Drive with windows closed.
		Reduced visibility	Ensure windows/mirrors are free from snow and ice. Drive with headlights on. Reduce speed appropriately.
		Slick, snowy, or icy roads	Use studded or chained tires, reduce speed, and increase following distances.
	Commercial travel	Airlines	Obey safety rules on common carrier transportation.
	Cross-Country Travel	ATV Operation	Wear appropriate safety clothing, complete ATV rider course prior to operation

SAMPLE ACTIVITY HAZARD ANALYSIS

ACTIVITY: Auto-inflatable PFD Test

ANALYZED BY/DATE:

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Using auto-inflatable PFD during work	Device improperly worn or assembled	Employees shall follow manufacturer's instructions for wearing, assembling CO2 cartridge mechanism, and pre-work inspection of PFDs
	Device damage from work	Do not expose auto-inflatable device to work environment that has potential to cause device damage such as welding slag, sharp objects, punctures, solvents, crushing, etc.
	Device Damage from storage	PFD shall be stored according to manufacturer's recommendations when not in use – PFD shall not be exposed to excessive moisture, crushing, extreme heat, etc. while stored.
	Discharge – equipment defect	Devices shall be worn and used properly – if a PFD inflates when wearer is not immersed it may cause injury or an accident. If such inflation occurs, it shall be reported to supervisor and to National Operations Center for Water Safety for possible action on a national level.
	Drowning	All auto-inflatable PFD users shall have basic ability to tread water and must be physically able to swim while wearing these PFDs. Persons with injuries or illnesses that temporarily or permanently prevent them from being able to swim shall not use auto-inflatable PFDs for the duration of the illness or injury.
	Device inoperable due to discharge	Offices that issue auto-inflatable PFDs to employees shall maintain an adequate number of recharging kits for the CO2 cylinders. Employees shall be instructed on how to obtain a recharge after deployment. Devices shall not be used until recharged