



**Homeland  
Security**

Science and Technology

# TechNote

U.S. Department of Homeland Security



System Assessment and Validation for Emergency Responders

The U.S. Department of Homeland Security (DHS) established the System Assessment and Validation for Emergency Responders (SAVER) Program to assist emergency responders making procurement decisions.

Located within the Science and Technology Directorate (S&T) of DHS, the SAVER Program conducts objective assessments and validations on commercial equipment and systems and provides those results along with other relevant equipment information to the emergency response community in an operationally useful form. SAVER provides information on equipment that falls within the categories listed in the DHS Authorized Equipment List (AEL).

The SAVER Program is supported by a network of technical agents who perform assessment and validation activities. Further, SAVER focuses primarily on two main questions for the emergency responder community: "What equipment is available?" and "How does it perform?"

For more information on this and other technologies, contact the SAVER Program Support Office.

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## Personal Flotation Devices for Law Enforcement Use

*Law enforcement agencies with maritime responsibilities must be properly equipped for water assignments, which include search and rescue, crime prevention, law enforcement, and medical support. Inherent in these responsibilities is the possibility of a planned or unplanned entry into the water. Many agencies require a properly fitted Personal Flotation Device (PFD) or flotation clothing suitable for existing weather and water conditions be worn at all times when operating in, on, and around water.*

### U.S. Coast Guard PFD Classifications

A PFD is designed as either a wearable or throwable device. U.S. Coast Guard (USCG) approved PFDs are labeled with one of five classification types, along with any special usage instructions. Dependent upon the needs of the agency, Types II, III, and V are the PFDs most commonly used by law enforcement personnel.

USCG classifications for approved PFDs are:

- Type I – Off-Shore Life Jackets
- Type II – Near-Shore Buoyancy Vests
- Type III – Flotation Aids
- Type IV – Throwable Devices
- Type V – Special Use Devices

### PFD Technology for Law Enforcement Use

Many types and styles of PFDs are used by law enforcement personnel working in and around the water. This technology includes multi-purpose vests, inflatable collars, inflatable pouches, and flotation clothing. While most adults require 7 to 12 pounds of buoyancy to keep their heads above water, law enforcement personnel carrying the additional weight of mission-essential equipment may require a PFD with substantially more buoyancy. The overall fit, comfort, and mobility provided by a PFD to the wearer are also factors that require consideration.

PFDs that inflate automatically (hydrostatic) are not suitable for all law enforcement missions. Specifically, hydrostatic devices should not be worn by personnel in helicopters as the automatic inflation may impede the wearer's egress in the event of a water landing. Regardless of the style or type of PFD selected, a procuring agency should ensure that maintenance and in-water training are conducted on a regular basis. Personnel should be comfortable with the proper operation of a PFD prior to encountering an emergency situation.

## *Multi-Purpose Vests*

Multi-purpose vests are designed for special uses. Some vests are designed to prevent hypothermia, some provide ballistic protection, and some are designed with pockets to carry equipment. Multi-purpose vests surround the user's torso and are securely fastened with a zipper or multiple clips. These vests are short waisted to improve comfort when seated and to accommodate a firearm. Multi-purpose vests are approved by the USCG as either a Type III or Type V flotation device.



**Multi-Purpose Vest**

## *Inflatable Collars*

These devices are comprised of an inflatable bladder connected to a carbon dioxide (CO<sub>2</sub>) inflation cartridge and include a manual inflation tube. The bladder is enclosed in a durable exterior shell and released by a break-away zipper. Depending on the selected model, these devices can be inflated either hydrostatically or manually. The hydrostatic device is designed to automatically inflate when submerged in more than four inches of water. The CO<sub>2</sub> cartridge or manual inflation tube can be used if the automatic inflation fails. This technology has been designed and tested to resist an inadvertent inflation typically caused by rain, water spray, or humidity. These devices provide no protection from hypothermia and must be worn as the outermost garment to properly inflate. Inflatable collars are approved by the USCG as either a Type II or Type V flotation device.



**Inflatable Collar**

## *Inflatable Pouches*

Inflatable pouches come in pairs and provide a means of flotation without the potential for interference with equipment that a vest or collar system might create. Testing of some of these devices determined that they provide the necessary buoyancy to return a user to the surface from a depth of 33 feet. Inflatable pouches place the wearer's head higher out of the water as they are typically fastened to the wearer's belt and inflate under the arms. Depending on the selected model, these devices can be inflated hydrostatically or manually. Manual inflation is performed by the activation of the CO<sub>2</sub> cartridge or orally. These devices also provide improved mobility, which is especially advantageous for watercraft and maritime airborne operations. Inflatable pouches are approved by the USCG as a Type III flotation device.



**Inflatable Pouches**

## *Flotation Clothing*

Flotation clothing, such as bibs and jackets, allow responders to work in inclement conditions by providing added protection from hypothermia and drowning. The bibs consist of a flame-resistant waterproof outer shell, which contains foam insulation for buoyancy. The waterproof jackets contain closed-cell foam insulation, which provides buoyancy and delays the onset of hypothermia. The pockets are lined with fleece and the wrist bands are made with neoprene to provide added protection from the elements. Flotation jackets are approved by the USCG as a Type III flotation device. The USCG does not recognize the bib as a flotation device.



**Flotation Clothing**

## *References*

U.S. Coast Guard, PFD Selection, Use, Wear & Care, <http://www.uscg.mil/hq/cg5/cg5214/pfdselection.asp>, accessed October 17, 2012.

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Personal Flotation Device Manufacturers Association, <http://www.pfdma.org/choosing/types.aspx>, accessed December 4, 2012.