

## Heat Ailment Recovery Pack (HARP)

### PURPOSE:

In places such as Iraq, average ambient temperatures can be anywhere between 95°F and 120°F. Under these conditions, heat-induced ailments can negatively affect Warfighter combat effectiveness through reduced endurance and cognitive function. Drinking cold water (<70°F) can drastically thwart off heat related ailments, as well as improve cognitive function and endurance. When compared to drinking warm water, cold water can increase exercise endurance capacity by 23 ±6%, as well as reduce heart rate and psychological strain.

It is also logistically difficult to provide Warfighters in austere conditions who have succumbed to heat related ailments proper medical treatment on-site due to the high temperature of the on-site medical supplies. These negative side effects can prove detrimental to mission success, and in the worst case, prove to be a safety issue to Warfighters who cannot receive on-site medical supplies (IV bags, etc) at the proper temperatures (77°F - 98.6°F). Examples of such heat-induced ailments include heat syncope, heat exhaustion, heat stroke, and dehydration.

The HARP provides medical personnel the ability to safely store, transport, and monitor/actively control the temperature of its contents. The intended purpose of the HARP is to provide personnel with the capability to cool water/medical supplies to their required temperature after any duration of time while also providing superior insulation properties.

### CHARACTERISTICS:

The HARP will provide mounted and un-mounted units in the field with the capability to safely store and transport at least 15 bottles of water in ice as well as a smaller removable bag, which contains a small amount of additional potable water and any medical supplies. The HARP also contains an onboard solar recharge capability and runs off the standard Military BB2590 battery. The system also features integrated straps for tie-down, remote monitoring and remote operation (on/off), and a newly developed polychromatic coating which reflects infrared radiation to increase performance. The system's inner bag is also capable of being removed, worn like a backpack or attached to a separate pack and run independently of the larger outer bag.



Heat Ailment Recovery Pack



### AT A GLANCE

#### ■ STORAGE CAPACITY:

Water: 15+ Bottles W/Ice  
Actively Cooled Water: 2 Bottles  
Actively Cooled Contents: 1+ IV Bag(s) and 1 ft<sup>3</sup> of storage space.

#### ■ Power:

Battery: BB2590 (3-4 Hrs Run Time)  
Solar Charging Capability

#### ■ Remote Monitoring/Control:

Remote Monitoring of up to 4 items using wireless sensors which attach to items.  
Remote control (ON/OFF) up to 100ft away.

#### ■ Performance:

IV Bag Cool Down:  
15 min to 98°F @ 120°F  
11 min to 98°F @ 110°F  
Minimum Temp:  
180 min to 61°F @ 120°F  
190 min to 56.6°F @ 110°F  
219 min to 49°F @ 95°F

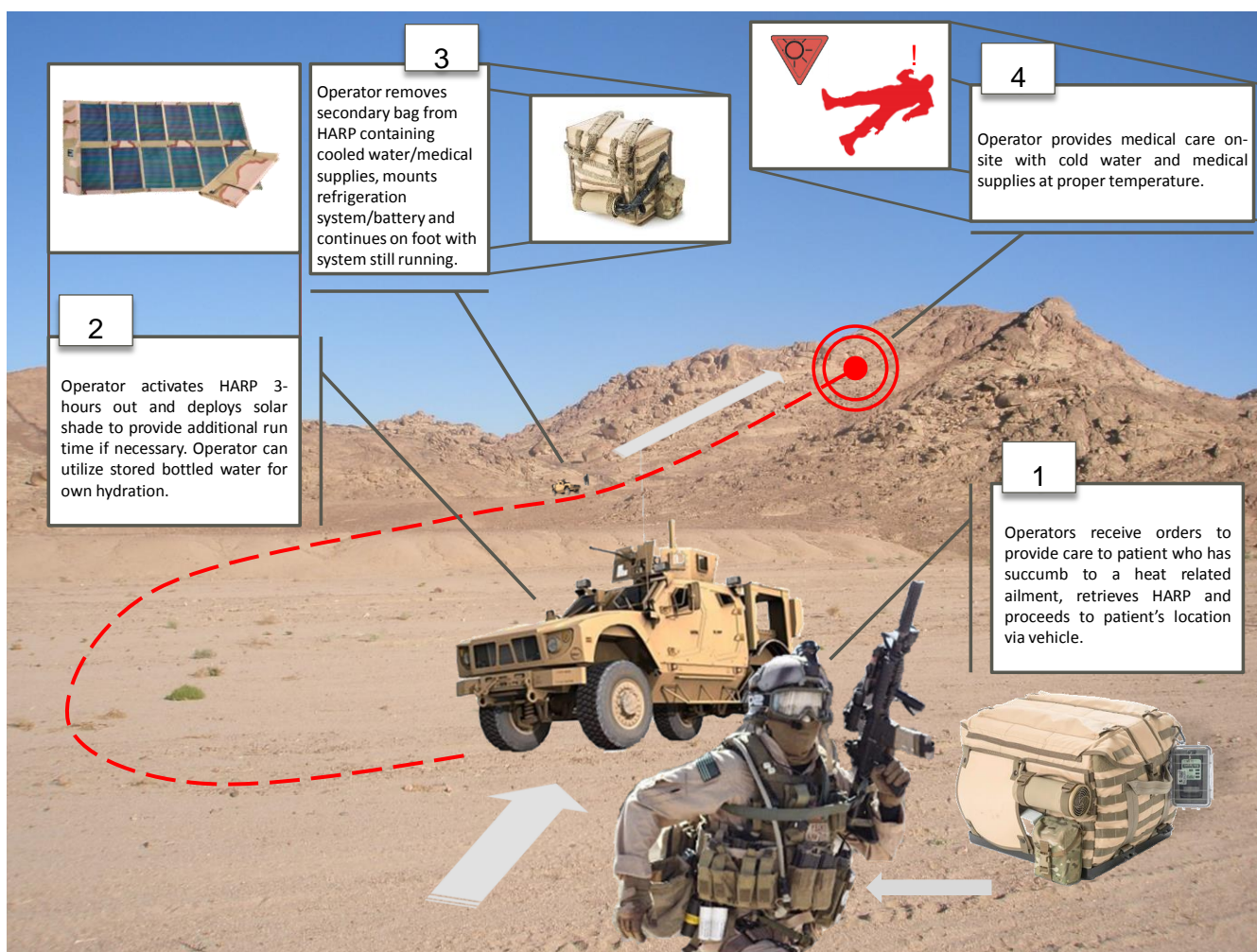
Currently Fielded With Safety Confirmation

### CAPABILITIES & BENEFITS:

- Capable of cooling contents within minutes, unlike standard refrigeration which takes hours.
- Capable of standalone indefinite operation due to solar panel/solar shade.
- Lighter weight than comparably sized COTS refrigeration systems.
- Superior insulation performance with proprietary construction and cutting-edge infrared reflective coating.
- Scalable design which allows the system to become fully man-transportable and remain operational.
- Ruggedized proven design with integrated tie-down straps with quick release cobra buckles.
- Remote monitoring & control; allowing the operator to monitor and control the temperature of the contents even when the system is stored on the outside of a vehicle or buried beneath other equipment.

### Concept of Operation (CONOPS):

The below CONOPS represents one possible scenario in which the HARP system could be used.



### POINT OF CONTACT:

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