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Issue 1



# TECHNICAL MANUAL USER HANDBOOK

# EQUIPMENT DECONTAMINATION - LIGHT (ED-L) DECONTAMINATION SYSTEM, LIGHT, EQUIPMENT C/W CES ITEMS

4230-66-165-8574

# EQUIPMENT DECONTAMINATION - LIGHT TRAINING (ED-LT) DECONTAMINATION SYSTEM, LIGHT, CBRN C/W CES ITEMS

4230-66-167-5020

**Publication Sponsor: Soldier Modernisation Systems Program Office** 

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Issue 1



## **Australian Government**

## **Department of Defence**

# TECHNICAL MANUAL USER HANDBOOK

# EQUIPMENT DECONTAMINATION - LIGHT (ED-L) DECONTAMINATION SYSTEM, LIGHT, EQUIPMENT C/W CES ITEMS

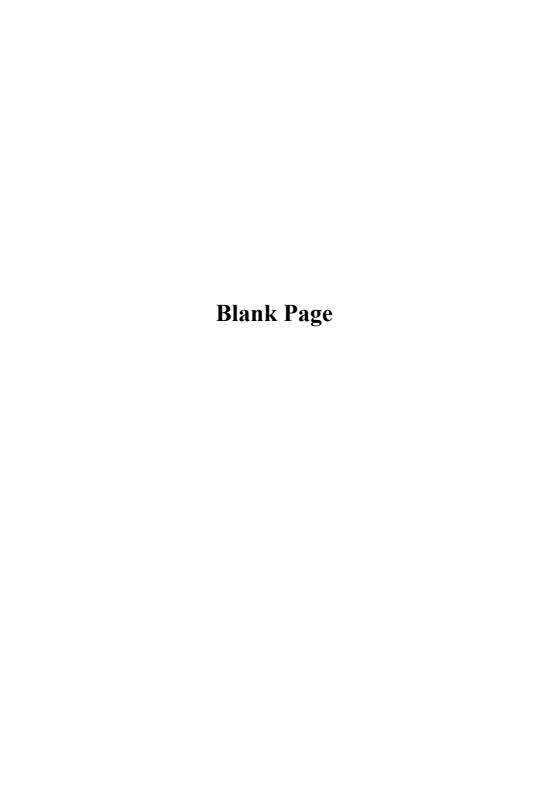
4230-66-165-8574

# EQUIPMENT DECONTAMINATION - LIGHT TRAINING (ED-LT) DECONTAMINATION SYSTEM, LIGHT, CBRN C/W CES ITEMS

4230-66-167-5020

Authorised for use in the Australian Defence Force by Director, Soldier Modernisation Systems Program Office Leanne Brndusic

PEng SMSPO



7610-66-166-2617 Warning Page

#### WARNING PAGE



The Dahlgren Decon (DD) fluids can cause injury to exposed skin, eyes, or airways. Ensure the appropriate Personal Protective Equipment (PPE) is worn at all times, failure to do so may lead to personal injury.



Do not use the Dahlgren Decon (DD) more than six hours after mixing as DD loses its effectiveness over time. Failure to do so may result in diminished decontamination ability and possible injury to personnel.



Ensure the appropriate Personal Protective Equipment (PPE) is fitted correctly and worn at all times when working in a contaminated environment. Failure to do so could lead to personal injury or death.



Do not leave or dispose of waste in an area of operations. Dispose of all waste in accordance with Australian Defence Force (ADF) doctrine and local environmental laws and regulations, especially those related to chemical disposal. Failure to do so could lead to personal injury or death.

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# WARNING

If the sealed packaging of any item has been breached before use, the integrity of the materiel system is compromised. The Operator will need to replace the damaged package before use. Failure to do so may lead to personal injury.

# WARNING

Possible exposure to contaminants. The process identified only describes how to apply decontaminants, it does not guarantee decontamination of equipment. All equipment must be tested for residual contamination after any attempt to decontaminate. Failure to confirm proper decontamination may result in death.

## WARNING

Ensure the appropriate PPE is worn when using the bilge pump in the presence of contaminated water against splashing hazard. Failure to do so may cause personal injury.

# WARNING

A full plastic jerry exceeds the maximum lift for one person. Operators should limit manual handling of a full jerry. Failure to do so may cause personal injury.

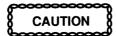
# WARNING

Ensure all residual Dahlgren Decontaminant is removed from equipment by wiping with a clean FiberTect Wipe and/or rinsing if reuse of the equipment is required within the first eight hours of application. Failure to remove residual mixed Dahlgren Decontaminant may result contact skin irritation or inhalation which may cause irritation of the nose and throat and coughing.

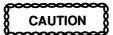
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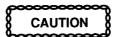
Equipment undergoing decontamination shall be treated as potentially contaminated until testing shows no contamination and an assessment is made on the risk of continued use. Insufficient decontamination and subsurface contamination may result in exposure to personnel and result in personnel injury.



If the DD solution is not intended to be used immediately, it must be left in the mixing beaker, un-covered, for approximately 30 minutes before pouring into the desired applicator. The applicator must remain open and not-sealed until immediately prior to use. Failure to do so may result in pressurisation of the applicator reservoir, reduced heat dissipation and diminished decontamination ability.



Do not shake the Tactical Decontamination Sprayer (TDS) as this will cause foaming. Failure to do so may reduce the effectiveness of the Dahlgren Decontamination (DD).



When aligning the handle assembly with the thread on top of the tank be aware of cross-threading as this will cause damage to the equipment. Warning Page 7610-66-166-2617

## CAUTION

If the DD solution is not intended to be used immediately, it must be left in the mixing beaker, un-covered, for approximately 30 minutes before pouring into the desired applicator. The applicator must remain open and not-sealed until immediately prior to use. Failure to do so may result in pressurisation of the applicator reservoir, reduced heat dissipation and diminished decontamination ability.



Do not shake the Tactical Decontamination Sprayer (TDS) as this will cause foaming. Failure to do so may reduce the effectiveness of the Dahlgren Decon (DD).

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7610-66-166-2617 Notes to Readers

#### **NOTES TO READERS**

1. The 'Notes to Readers' section of this UHB provides guidance to personnel on how to read and interpret the information in this manual.



A warning precedes an operating procedure or maintenance practice, which if not correctly followed, could result in personal injury or loss of life.



A caution precedes an operating procedure or maintenance practice, which if not strictly observed, could result in damage to or destruction of the equipment, or corruption of data.

#### NOTE

A note precedes or follows an operating procedure or maintenance practice or condition, which requires highlighting.

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#### **SECTION 1**

#### **CHAPTER 1**

### **DATA SUMMARY**

#### **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information

- **1.** The Equipment Decontamination Light (ED-L) Sub-system provides the capability to decontaminate a small number of ADF Land Platforms, General Equipment, Weapon Systems or personal and mission specific equipment
- **2.** The equipment provided is of a small footprint and can be used to apply decontaminant, capture by-product and dispose of contaminated material or liquids. Decontamination activities are generally performed by two operators.

#### System Capabilities

- **3.** The ED-L Sub-system enables the following capabilities, refer Figure 1-1:
  - **a.** Decontamination of equipment,
  - **b.** Capture of by-product, which is resultant from decontamination processes and
  - **c.** Storage and transport of the ED-L Sub-system.

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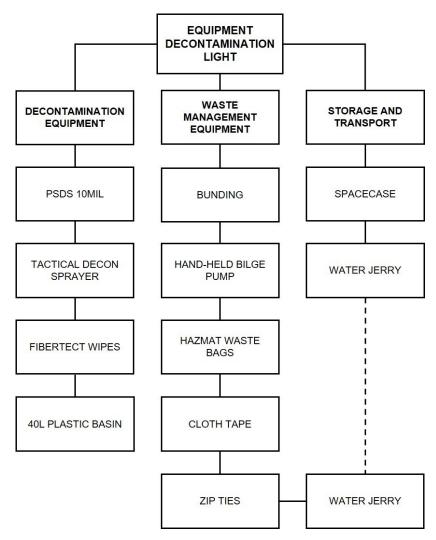


Figure 1-1 ED-L Sub-system Capabilities Breakdown

**4.** The ED-L Sub-system is packed into two identical Spacecases; each Spacecase comprises the items numbered 1 to 12 in Figure 1-2 and listed in Table 1-1. A standard pallet space footprint accommodates two Spacecases which make up the complete ED-L Sub-system.

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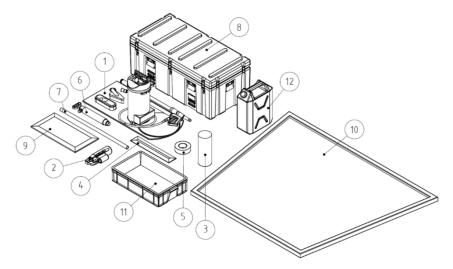


Figure 1-2 Equipment Decontamination – Light Configuration



Equipment that weighs in excess of 19 kg requires a second person or may require the use of material handling equipment to lift. Ensure the correct material handling equipment is used to conduct the lift. Failure to do so may lead to personal or physical injury.

Table 1-1 ED-L Sub-System Contents

| Serial | Item   | Mass    |
|--------|--|---------|
| 1      | PSDS 10MIL Kit (empty)   | 7.52 kg |
| 2      | Tactical Decon Sprayer (empty)   | 0.50 kg |
| 3      | FiberTect Perforated Roll - (20) 12"x 12" wipes  Use "Wipes Roll – Training (Inert)" in training (0.36 kg) | 0.82 kg |
| 4      | Zip Ties 480 mm (25 Pack)  | 0.36 kg |
| 5      | Tape Cloth Roll 48 mm x 40 m black (Quantity 2)  | 0.72 kg |
| 6      | Bilge pump (empty)   | 0.38 kg |
| 7      | Bilge Pump Hose  | 0.30 kg |

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Table 1-1 ED-L Sub-System Contents (Continued)

| Serial | Item                             | Mass     |
|--------|----------------------------------|----------|
| 8      | Spacecase (empty)                | 19.80 kg |
| 9      | Waste Bags (10 Pack)             | 2.96 kg  |
| 10     | Tapered 50 mm Foam Edge Bunding  | 3.90 kg  |
| 11     | Plastic Basin 40 L               | 1.55 kg  |
| 12     | Plastic Jerry 22 L Green (empty) | 1.50 kg  |

### **Specifications**

**5.** Table 1-2 contains specifications of the PSDS Assembly.

Table 1-2 PSDS Applicator Assembly Dimensions

| Serial | Item            | Specifications                  |                 |
|--------|-----------------|---------------------------------|-----------------|
| 1      | PSDS Applicator | Height                          | 580 mm          |
| 2      |                 | Diameter                        | 230 mm          |
| 3      |                 | Weight (Empty)                  | 5.46 kg         |
| 4      |                 | Weight (Full)                   | 15.46 kg        |
| 5      | Characteristics | Stand-off Distance<br>Range     | 500 mm – 800 mm |
| 6      |                 | Average Flow rate               | 4.4 L/min       |
| 7      |                 | Tank Capacity                   | 11.5 L          |
| 8      |                 | Average Time to<br>Deplete Tank | 135 sec         |
| 9      |                 | Pressure                        | up to 6 bar     |
| 10     | Spray Lance     | Length                          | 810 mm          |
| 11     |                 | Width                           | 170 mm          |
| 12     |                 | Height                          | 40 mm           |
| 13     |                 | Mass                            | 700 g           |
| 14     | Hose Assembly   | Diameter                        | 21 mm           |
| 15     |                 | Length                          | 1300 mm         |

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Table 1-2 PSDS Applicator Assembly Dimensions (Continued)

| Serial | Item      | Dimensions      |         |
|--------|-----------|-----------------|---------|
| 16     | Field Bag | Diameter        | 300 mm  |
| 17     |           | Height          | 1000 mm |
| 18     |           | Weight          | 900 g   |
| 18     |           | Weight (packed) | 7.52 kg |

**6.** Table 1-3 contains specifications of the PSDS Applicator Accessories.

**Table 1-3 PSDS Applicator Accessories Dimensions** 

| Serial | Item             | Dimensions       |         |
|--------|------------------|------------------|---------|
| 1      | Triangular Brush | Length           | 160 mm  |
| 2      |                  | Width            | 85 mm   |
| 3      |                  | Height           | 100 mm  |
| 4      |                  | Weight           | 0.26 kg |
| 5      | Oval Brush       | Length           | 240 mm  |
| 6      |                  | Width            | 115 mm  |
| 7      |                  | Height           | 63 mm   |
| 8      |                  | Weight           | 0.34 kg |
| 9      | Telescopic Pole  | Collapsed Length | 900 mm  |
| 10     |                  | Extended Length  | 2020 mm |
| 11     |                  | Weight           | 0.62 kg |

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**7.** Table 1-4 contains specifications of the Tactical Decon Sprayer.

Table 1-4 Tactical Decon Sprayer Specifications

| Serial | Item                   | Dimensions         |              |
|--------|------------------------|--------------------|--------------|
| 1      | Tactical Decon Sprayer | Height             | 330 mm       |
| 2      |                        | Width              | 150 mm       |
| 3      |                        | Depth              | 76 mm        |
| 4      |                        | Weight (Empty)     | 500 g        |
| 5      |                        | Weight (Full)      | 1.15 kg      |
|        |                        | Characteristics    |              |
| 6      |                        | Stand-off Distance | 0.15 – 0.3 m |
| 7      |                        | Average Flow Rate  | 0.43 L/min   |
| 8      |                        | Tank Capacity      | 650 mL       |

**8.** Table 1-5 contains specifications of the Bilge Pump Assembly.

Table 1-5 Bilge Pump Assembly Specifications

| Serial | Item          | Dimensions       |        |
|--------|---------------|------------------|--------|
| 1      | Bilge Pump    | Length           | 460 mm |
| 2      |               | Width            | 110 mm |
|        |               | Height           | 70 mm  |
| 3      |               | Weight (Dry)     | 680 g  |
| 4      | Flexible Hose | Length           | 900 mm |
| 5      |               | Outside diameter | 30 mm  |
| 6      |               | Inside diameter  | 25 mm  |

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**9.** Table 1-6 contains specifications of the Foam Bunding.

Table 1-6 Foam Edge Bunding Dimensions

| Serial | Item                       | Dimensions   |        |
|--------|----------------------------|--------------|--------|
| 1      | Foam Bunding (operational) | Length       | 1.5 m  |
| 2      |                            | Width (Max)  | 1.9 m  |
| 3      |                            | Width (Min)  | 1.4 m  |
| 4      |                            | Height       | 50 mm  |
| 6      | Foam Bunding (packaged)    | Length       | 860 mm |
| 7      |                            | Width        | 420 mm |
| 8      |                            | Height       | 200 mm |
| 9      |                            | Weight (Dry) | 3.8 kg |
| 10     | Foam Edging                | Width        | 50 mm  |
| 11     |                            | Height       | 50 mm  |

**10.** Table 1-7 contains specifications of the FiberTect Wipes and Figure 1-3 illustrates the FiberTect Wipes in the packaged state.

Table 1-7 FiberTect Wipes Specifications

| Serial | Item            | Dimensions |        |
|--------|-----------------|------------|--------|
| 1      | FiberTect Wipes | Length     | 330 mm |
| 2      |                 | Diameter   | 120 mm |
| 3      |                 | Weight     | 820 g  |



Figure 1-3 FiberTect Wipes - Packaged

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**11.** Table 1-8 contains specifications of the zip ties and Figure 1-4 illustrates the zip ties in the packaged state.

| Serial | Item                  | Dimensions       |         |
|--------|-----------------------|------------------|---------|
| 1      | Zip Ties (Packaged)   | Length           | 550 mm  |
| 2      |                       | Width            | 150 mm  |
| 3      |                       | Thickness        | 100 mm  |
| 4      |                       | Weight           | 400 g   |
| 5      | Zip Ties (Individual) | Length           | 480 mm  |
| 6      |                       | Width            | 12.6 mm |
| 7      |                       | Thickness        | 2.1 mm  |
| 8      |                       | Tensile Strength | 114 kg  |

Table 1-8 Zip Ties Specifications



Figure 1-4 Zip Ties - Packaged

**12.** Table 1-9 contains specifications of the cloth tape.

Table 1-9 Cloth Tape Specifications

| Serial | Item       | Dimensions |        |
|--------|------------|------------|--------|
| 1      | Cloth Tape | Length     | 40 m   |
| 2      |            | Width      | 48 mm  |
| 3      |            | Thickness  | 330 μm |
| 4      |            | Weight     | 720 g  |

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**13.** Table 1-10 contains specifications of the hazardous materials waste bag and Figure 1-5 illustrates ten waste bags in the packaged state.

| Serial | Item                   | Dimensions |              |
|--------|------------------------|------------|--------------|
| 1      | Waste Bag (Individual) | Opening    | 585 x 540 mm |
| 2      |                        | Length     | 1410 mm      |
| 3      |                        | Thickness  | 100 μm       |
| 4      |                        | Capacity   | 240 L        |
| 5      | Waste Bags (Packaged)  | Length     | 650 mm       |
| 6      |                        | Width      | 360 mm       |
| 7      |                        | Depth      | 30 mm        |

Weight (pk of 10)

2.96 kg

Table 1-10 Waste Bag Specifications



Figure 1-5 Waste Bags - Packaged

**14.** Table 1-11 contains the details of the plastic basin

8

Table 1-11 Plastic Basin Specification

| Serial | Item          | Description    |         |
|--------|---------------|----------------|---------|
| 1      | Plastic Basin | Length         | 660 mm  |
| 2      |               | Width          | 155 mm  |
| 3      |               | Height         | 405 mm  |
| 4      |               | Weight (empty) | 1.55 kg |
| 5      |               | Capacity       | 40 L    |

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**15.** Table 1-12 contains specifications of the plastic jerry can.

Table 1-12 Plastic Jerry Can Specification

| Serial | Item              | Description    |         |
|--------|-------------------|----------------|---------|
| 1      | Plastic Jerry Can | Height         | 460 mm  |
| 2      |                   | Width          | 179 mm  |
| 3      |                   | Depth          | 348 mm  |
| 4      |                   | Capacity       | 22 L    |
| 5      |                   | Weight (empty) | 1.5 kg  |
| 6      |                   | Weight (full)  | 23.5 kg |

**16.** Table 1-13 contains the dimensions of the ED-L Spacecase.

Table 1-13 Spacecase Dimensions

| Serial | Item      | Dimensions     |         |
|--------|-----------|----------------|---------|
| 1      | Spacecase | Length         | 1100 mm |
| 2      |           | Width          | 550 mm  |
| 3      |           | Height         | 465 mm  |
| 4      |           | Weight (Empty) | 19.8 kg |
| 5      |           | Weight (Laden) | 40.3 kg |

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#### TRAINING ACCESSORIES

**17.** Training accessories are used in lieu of the active elements above. They are to be used as a substitute for training purposes only

### Wipes Roll - Training (Inert)

**18.** Table 1-14 contains specifications of the wipes roll training (inert), in training this replaces FiberTect wipes.

Table 1-14 Wipes Roll - Training (Inert) Specifications

| Serial | Item                             | Dimensions |        |
|--------|----------------------------------|------------|--------|
| 1      | Wipes Roll – Training<br>(Inert) | Length     | 210 mm |
| 2      |                                  | Width      | 210 mm |
| 3      |                                  | Height     | 320 mm |
| 4      |                                  | Weight     | 360 g  |

#### Microfibre Cloth

**19.** Table 1-15 contains specifications of the microfibre cloth contained inside the wipes roll training (inert) bag.

**Table 1-15 Microfibre Cloth Specifications** 

| Serial | Item             | Dimensions     |        |
|--------|------------------|----------------|--------|
| 1      | Microfibre Cloth | Length         | 300 mm |
| 2      |                  | Width          | 300 mm |
| 3      |                  | Height         | 2 mm   |
| 4      |                  | Weight (Laden) | 15 g   |

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## **SECTION 1**

#### **CHAPTER 2**

# **EQUIPMENT DESCRIPTION**

## **EQUIPMENT DECONTAMINATION - LIGHT**

### **General Information**

**1.** The ED-L Sub-system, refer Figure 2-1, includes products that apply Dahlgren Decon (DD) for the function of neutralisation or removal of Chemical, Biological or Radiological Hazards.

#### NOTE

The DD does not form part of the ED-L Sub-system and is provided by the Decontaminant Sub-system.



Figure 2-1 Equipment Decontamination Light Sub-system

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# **PSDS Applicator Assembly**

**2.** The PSDS applicator assembly will provide a medium flow rate application of decontaminant suitable for applying as a fluid to contaminated surfaces or areas

**3.** The kit comprises the following components refer Figure 2-2 and Table 2-1:



Figure 2-2 PSDS Applicator Assembly

| ITEM | DESCRIPTION   |
|------|---|
| 1    | Pneumatic System with Manual Pump                     |
| 2    | Shoulder Straps                                       |
| 3    | Field Bag   |
| 4    | Triangular Brush                                      |
| 5    | Hose Assembly   |
| 6    | Oval Brush  |
| 7    | Spray Lance   |
| 8    | Telescopic Pole                                       |
| 9    | Tank  |
| 10   | Cover (Housing Pressure Gauge, Safety Valve and Plug) |

Table 2-1 PSDS Applicator Assembly Components

# **PSDS Applicator Assembly Breakdown**

- **4.** Tank and Manual Pump. The tank is made from stainless steel and is lined internally with a protective polyester film. The pneumatic pressurising system for the tank is generated manually using the manual pump handle. The tank can be pressurised to the recommended pressure of 6 bar whilst dispensing 10 litres of fluid.
- **5.** The top of the tank houses the pressure gauge, safety relief valve and plug, refer Figure 2-3. The pressure gauge shows the tank pressure in either PSI or bar. The red central button is a safety valve that when lifted will release the pressure held in the tank. The valve will activate automatically if pressure exceeds limit.
- **6.** Two shoulder straps mounted to the tank allow it to be carried on the back of the user.



Figure 2-3 PSDS Tank Safety Components

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7. The hose is used to connect the tank to the various fittings. A quick connect coupling at the end of the hose allows for easy connection and disconnection to the fitting required for the decontamination task. The hose is made of a clear plastic that is crush resistant. During transport the hose remains connected to the tank.

**8. Spray Lance.** The spray lance, refer to Figure 2-4, is used to distribute the decontamination solution from the tank to the contaminated surfaces. The lance has a quick connect fitting mounted just forward of the trigger guard. The lance is operated with a single squeeze.



Figure 2-4 PSDS Spray Lance

# **PSDS Applicator Accessories**

- **9.** Accessories used within the PSDS to assist with decontamination include:
  - a. triangular brush;
  - **b.** oval brush; and
  - c. telescopic pole.
- **10.** The telescopic pole is used separately with brushes and can be adjusted to various lengths. This will facilitate further cleaning of surfaces using the triangular or oval brush accessories as required, refer Figure 2-5.



Figure 2-5 PSDS Applicator Accessories

# **PSDS Field Bag**

**11.** The PSDS field bag, refer Figure 2-6, can be used to store the PSDS Applicator Assembly and Accessories for transport or transition from the transit Spacecase to the location requiring decontamination. For the ED-L Sub-system the PSDS field bag is stowed separately and empty within the Spacecase.

**12.** The field bag is made of canvas and has a draw chord at the top and a separate carry strap.



Figure 2-6 PSDS Field Bag

# **Tactical Decon Sprayer (TDS)**

13. The TDS, refer Figure 2-7, is an associated sub-system of the ED-L Sub-system and is stowed in the accompanying Modular Lightweight Load-carrying Equipment (MOLLE) bag. The sprayer is a hand-held, pump action, trigger-operated sprayer, used for low-pressure application of DD. Minimal pumping is required to pressurise the sprayer and the standoff distance of 0.15 to 0.3 m allows the operator to cover a range of surfaces and smaller objects.

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Figure 2-7 Tactical Decon Sprayer and MOLLE Bag

## FiberTect Wipe - Perforated Roll

**14.** The FiberTect perforated roll, refer Figure 2-8, comprises of 20 wipes which can be used to remove gross contaminants, absorb liquid and retain toxic vapours and to remove excess decontaminant following specified dwell times. A wipe is composed of a three layer composite with an activated carbon non-woven felt inner layer. The wipes provide a dry method of decontamination, allowing an operator to conduct the Wipe-Spray-Wipe decontamination procedure



Figure 2-8 FiberTect Perforated Roll

# **Zip Ties**

**15.** The 25 pack of Zip Ties, refer Figure 2-9, are provided to seal and mark waste bags and water jerries.



Figure 2-9 Zip Ties

## Cloth Tape Roll

**16.** Two rolls of cloth tape, refer Figure 2-10, are provided to seal and mark waste bags and water jerries.



Figure 2-10 Cloth Tape Roll

# **Bilge Pump Assembly**

17. The hand operated bilge pump, refer Figure 2-11, is used to transfer by-product from the plastic basin or bunding into the plastic jerry for temporary waste containment. The assembly consists of bilge pump and hose; one end of the hose attaches to the barbed fitting on the pump and the other end fits into the plastic jerry. The pump nozzle is submerged into the by-product for evacuation and the pump has a maximum capacity of 400 mL per stroke.



Figure 2-11 Bilge Pump Components

# **Waste Bags**

**18.** The pack of ten heavy duty polyethylene waste bags, refer Figure 2-12, are provided for containment and disposal of contaminated waste.

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Figure 2-12 Waste Bags

### Plastic Basin

**19.** A 40 L polypropylene plastic basin, refer Figure 2-13, is provided as a dunk tub for dunking suitably-sized and IP-rated equipment into decontaminant.



Figure 2-13 Plastic Basin

# Foam Edge Bunding

- **20.** The foam edge bunding, refer Figure 2-14, is provided to support the capture of by-product during decontamination activities by placing it below the target surface. The bunding has sectional closed cell foam edging which allows folding for transportation purposes and also has a buckle that secures it in folded state.
- **21.** Two trapezoidal shaped bundings can be placed together, with one rotated through 180 degrees, to create a larger waste capture area for decontamination of vehicles, equipment and weapons.



Figure 2-14 Foam Edge Bunding

# **Plastic Jerry**

- **22.** The 22 L plastic jerry, refer Figure 2-15, provides support to the area decontamination system by providing fresh water as well as temporary containment/storage of by-product during decontamination processes.
- **23.** It is made of plastic to reduce its weight during transport and has a 22 L capacity. There is also a breather in the can to allow for an even flow of water.



Figure 2-15 Plasic Jerry

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# **Spacecase**

**24.** The Spacecase, refer Figure 2-16, is a transport solution provided to carry the ED-L System components listed in Sect 1, Chap 1, Table 1-1.

- **25.** The Spacecase is made from moulded polyethylene plastic. The ribs moulded into the outer surface of the lid provide interlocking when stacked. The side mounted handles are heavy duty rubber gripped.
- **26.** The inner lid and inner walls are also lined with foam inserts to protect the contents during transport.



Figure 2-16 Spacecase

## TRAINING ACCESSORIES

**27.** Training accessories are used in lieu of the active elements above. They are to be used as a substitute for training purposes only.

## Wipes Roll - Training (Inert)

**28.** The training wipes roll, refer Figure 2-17, consists of 20 microfibre cloths, refer Figure 2-18 stowed within a stuff bag and are used in lieu of the FiberTect wipes, refer Paragraph 14.



Figure 2-17 Wipes Roll – Training (Inert)

**29.** The wipe training inter is a microfibre cloths are an 80% polyester, 20% polyamide, non abrasive and lint free. A single cloth can absorb 7-10 times its weight and is machine washable.



Figure 2-18 Wipe Training Inert

**30.** The training wipes roll is stowed in the ED-L Spacecase, refer Section 2, Chapter 5, Figure 5-8 and are packed in accordance with the packing instructions.

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# **SECTION 2 - OPERATING INSTRUCTIONS**

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**CHAPTER 4 - OPERATOR INSTRUCTIONS** 

CHAPTER 5 - PACKAGING, HANDLING, STORAGE AND TRANSPORTATION

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## **SECTION 2**

#### **CHAPTER 1**

# PRECAUTIONS BEFORE USE

#### **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information

- **1.** Observe the following precautions prior to handling, transportation, set-up and operation of the Equipment Decontamination Light (ED-L) Sub-system:
  - **a.** Refer to Chapter 3 Safety Precautions.
  - **b.** Refer to Chapter 5 Packaging, Handling, Storage and Transportation.

#### NOTE

As each Spacecase in the ED-L Sub-system contains the same contents, carry out the following steps for each Spacecase.

- **c.** Ensure the ED-L Sub-system equipment, is not damaged by checking:
  - (1) The PSDS applicator and accessories, refer Sect 1, Chap 2, Figure 2-2 and Table 2-1, consisting of;
    - (a) One PSDS applicator assembly;
    - **(b)** One PSDS spray lance;
    - (c) One field bag;
    - (d) One triangular brush;
    - (e) One oval brush; and
    - **(f)** One telescopic pole.
  - (2) One TDS;
  - (3) One bilge pump
  - **(4)** One bilge pump hose;
  - (5) One plastic basin;
  - **(6)** One foam edge bunding;
  - (7) One 22 L plastic jerry;

- (8) One packet of zip ties;
- (9) One roll FiberTect wipes;
- (10) One roll of cloth tape; and
- (11) One pack of waste bags.
- **d.** Check the 22 L plastic jerry for any visible damage to the external surfaces.
- **e.** Check the Spacecase for any visible damage.
- **f.** Check that all the PSDS equipment is not visibly damaged.
- **g.** Check the various brush head and equipment threads for any damage.
- **h.** Check the foam edge bunding for damage.
- i. Return all the equipment to the Spacecase in accordance with Chapter 5, Paragraph 9.
- **2.** Tag any damaged items with a suspected fault tag and discontinue use. List any missing or damaged items and order replacements.

3.

## **SECTION 2**

#### **CHAPTER 2**

# **PREPARATION**

### **EQUIPMENT DECONTAMINATION - LIGHT**

### **General Information**

**1.** Ensure the intended site space will accommodate the station layout; refer Figure 2-1, for the approximate floor space dimensions required for the ED-L station.

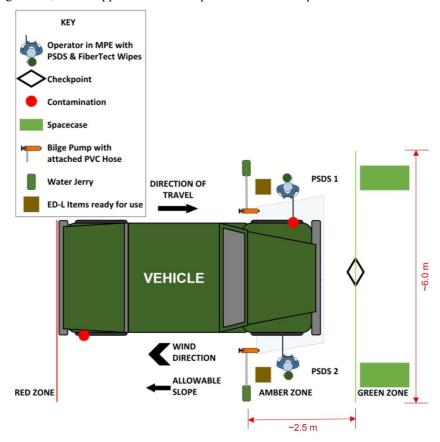


Figure 2-1 ED-L Station - Floor Space Dimensions

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**2.** When setting-up the ED-L station, the operators may determine the exact locations of items at their discretion, adhering to the following key points:

- **a.** Set-up the site relative to the prevailing wind direction and ground slope as shown in Figure 2-1, where possible.
- **b.** Ensure sufficient room around the bunding for vehicle entry and exit.
- **c.** Position Spacecases and all non-required components in the green zone, refer Figure 2-1, at the sides of the bunding.
- **d.** The 40 L basins are only required if the decontamination procedure involves the dunking of equipment or weapons.
- **3.** Set-up the ED-L Station by referring to the Operating Instructions detailed in Chapter 4.
- **4.** Following set-up, prepare the ED-L station for decontamination activities by bringing ED-L up to Operational State Standby Mode state as defined in Chapter 5.

## **Prepare Liquids**

- **5.** Prior to deployment, the following consumables/liquids are to be supplied to the ED-L Sub-system.
  - **a.** Four 22 oz (650 mL) Dahlgren Decon (DD) kits.
  - **b.** Four 22 oz (650 mL) DD Part A.
  - **c.** Water for each of the two 22 L jerries.
  - **d.** One 19 L Dahlgren Decon (DD) RTU, if dunking equipment is required

#### NOTE

The 650 mL DD solution for the TDS can be prepared in advance by mixing in the beakers supplied with the kit. It is not required to prepare DD for the PSDS at this stage; refer to Section 2, Chapter 4, Paragraph 7 for mixing/filling the PSDS tanks.

# **Decontaminant Mixing – 650 ml Configuration**

# WARNING

The Dahlgren Decon (DD) fluids can cause injury to exposed skin, eyes, or airways. Ensure the appropriate Personal Protective Equipment (PPE) is worn at all times, failure to do so may lead to personal injury.



Do not use the Dahlgren Decon (DD) more than six hours after mixing as DD loses its effectiveness over time. Failure to do so may result in diminished decontamination ability and possible injury to personnel



If the DD solution is not intended to be used immediately, it must be left in the mixing beaker, un-covered, for approximately 30 minutes before pouring into the desired applicator. The applicator must remain open and not-sealed until immediately prior to use. Failure to do so may result in pressurisation of the applicator reservoir, reduced heat dissipation and diminished decontamination ability.



Do not shake the Tactical Decontamination Sprayer (TDS) as this will cause foaming. Failure to do so may reduce the effectiveness of the Dahlgren Decon (DD).

#### NOTE

The mixing of the three-part Dahlgren Decon and pouring into the TDS takes approximately five minutes.

- **6.** Prepare the Dahlgren Decon (DD) as follows referring to Figure 2-2:
  - **a.** Open the Dahlgren Decon Part A spout bag screw cap by rotating it counter-clockwise. Using the end of the stir rod, puncture the seal located beneath the screw cap if required.

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#### NOTE

Foaming of the Dahlgren Decon Part A liquid may occur when pouring into the bucket. If possible, allow any foam 'head' to subside once the step is complete before proceeding with the mixing process.



Figure 2-2 DD 650 ml RTU

- **b.** With the beaker on a stable surface, empty the Dahlgren Decon Part A liquid into the mixing beaker and place the empty spout bag to one side.
- **c.** Tear open the Dahlgren Decon Part B1 foil packet at the designated notches, taking care not to spill the contents of the packet.

#### NOTE

Ensure the Dahlgren Decon Part B1 solid is poured in the path of the stir rod and not directly in the centre of the beaker so as to prevent the build-up of undissolved solids within the solution.

**d.** While stirring the Dahlgren Decon Part A liquid with the stir rod, gradually pour the Dahlgren Decon Part B1 solid beads into the mixing beaker and place the empty packet to one side.

#### NOTE

The absence of any large Dahlgren Decon Part B1 particles present on the end of the stir rod after scraping the stir rod across the base of the beaker or suspended within the solution shall be used as an indicator of the step being completed (some small particles may remain).

#### NOTE

This mixing step may take approximately 120-180 seconds to complete, however this time will vary depending on ambient temperature.

#### NOTE

Addition of the Dahlgren Decon Part B1 solid to the Part A liquid will cause the temperature of the solution to rise.

#### NOTE

Foaming of the solution may occur when stirring the Dahlgren Decon Part A and Part B1 solution. If possible, allow any foam 'head' to subside before proceeding with the Part B2 mixing process.

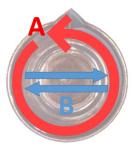


Figure 2-3 Dahlgren Decon mixing (650 ml)

- **e.** Using the stir rod, continue to stir the Dahlgren Decon Part A and Part B1 solution using a combination of 'circular' (A) and 'cross' (B) stir rod movements, refer Figure 2-3, until all large Part B1 particles are dissolved, ensuring that stirring does not cause excessive foaming of the solution.
- **f.** Open the Dahlgren Decon Part B2 spout bag screw cap by rotating it counter-clockwise.

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#### NOTE

Ensure the DD Part B2 solid is poured in the path of the stir rod and not directly in the centre of the beaker so as to prevent the build-up of undissolved solids within the solution.

**g.** While stirring the solution with the stir rod, gradually add the Dahlgren Decon Part B2 powder to the solution in the mixing beaker, taking care to minimise the dust from the PES-solid powder, and place the empty spout bag to one side.

#### NOTE

The absence of any Dahlgren Decon Part B2 'sediment' present on the end of the stir rod after scraping the stir rod across the base of the beaker shall be used as an indicator of the step being completed (some small particles may remain).

#### NOTE

This mixing step may take approximately 180-240 seconds to complete, however this time will vary depending on ambient temperature.

#### NOTE

Addition of the Dahlgren Decon Part B2 solid will cause the temperature of the solution to rise.

#### NOTE

Once stirring has ceased, foaming within the liquid will settle and may develop a foam 'head' atop the solution which can be physically removed, or allowed to collapse either naturally or through intermittent agitation of the foam using the stir rod. If possible, allow any foam 'head' to subside once stirring is complete before pouring the solution into an applicator

- h. Using the stir rod, continue to stir the solution for a minimum of 180 seconds using a combination of 'circular' (A) and 'cross' (B) stir rod movements, refer Figure 2-3, until all Part B2 sediment is dissolved, ensuring that stirring does not cause excessive foaming of the solution and intermittently scraping along the base of the beaker so as to prevent the build-up of undissolved solids within the solution.
- i. Allow any foaming reaction to settle.

7. The mixed DD solution is now ready to be poured out of the mixing into the TDS

# **Decontaminant Mixing - 19 L Configuration**



The Dahlgren Decon (DD) fluids can cause injury to exposed skin, eyes, or airways. Ensure the appropriate Personal Protective Equipment (PPE) is worn at all times, failure to do so may lead to personal injury.



Do not use the Dahlgren Decon (DD) more than six hours after mixing as DD loses its effectiveness over time. Failure to do so may result in diminished decontamination ability and possible injury to personnel.



If the DD solution is not intended to be used immediately, it must be left in the mixing bucket, un-covered, for approximately 30 minutes before pouring into the desired applicator. The applicator must remain open and not-sealed until immediately prior to use. Failure to do so may result in pressurisation of the applicator reservoir, reduced heat dissipation and diminished decontamination ability.

#### NOTE

The absence of any Dahlgren Decon Part B2 'sediment' present on the end of the stir rod after scraping the stir rod across the base of the beaker shall be used as an indicator of the step being completed (some small particles may remain).

- **8.** Prepare the Dahlgren Decon (DD), refer Figure 2-4, as follows:
  - **a.** Remove the lid from the decon bucket, unlock the lid by lifting the red latch while rotating the lid counter-clockwise.

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**b.** Remove the Dahlgren Decon Part A bag, Part B1 and Part B2 packets as well as the stir rod handle and blade, and the SDS from the decon bucket. Ensure the empty decon bucket is free from foreign contaminants such as dirt, dust or debris, and if/where required, invert/wipe the inside of the bucket before proceeding with the mixing process.

- **c.** Assemble the stir rod by screwing the handle onto the threaded blade in a clockwise direction taking care to avoid cross threading.
- **d.** Open the Dahlgren Decon Part A bag screw cap by rotating the cap counter-clockwise.



Figure 2-4 Dahlgren Decon 19 L RTU
NOTE

Foaming of the Dahlgren Decon Part A liquid may occur when pouring into the bucket. If possible, allow any foam 'head' to subside before proceeding with the mixing process.

- **e.** With the decon bucket on a stable surface, empty the Dahlgren Decon Part A liquid into the decon bucket and place the empty bag to one side.
- **f.** Carefully open the Dahlgren Decon Part B1 foil packet, taking care not to spill the contents of the packet.

#### NOTE

Ensure the DD Part B1 solid is poured in the path of the stir rod and not directly in the centre of the bucket so as to prevent the build-up of undissolved solids within the solution.

**g.** While stirring the Dahlgren Decon Part A liquid with the stir rod, gradually pour the Dahlgren Decon Part B1 solid beads into the decon bucket and place the empty packet to one side

#### NOTE

The absence of any large Dahlgren Decon Part B1 particles present on the end of the stir rod after scraping the stir rod across the base of the bucket or suspended within the solution shall be used as an indicator of the step being completed (some small particles may remain).

#### NOTE

This mixing step may take approximately 120-180 seconds to complete, however this time will vary depending on ambient temperature.

#### NOTE

Addition of the Dahlgren Decon Part B1 solid to the Part A liquid will cause the temperature of the solution to rise.

#### NOTE

Foaming of the solution may occur when stirring the Dahlgren Decon Part A and Part B1 solution. If possible, allow any foam 'head' to subside before proceeding with the Part B2 mixing process.

h. Using the stir rod, continue to stir the Dahlgren Decon Part A and Part B1 solution using a combination of 'circular' (A) and 'cross' (B) stir rod movements until all large Part B1 particles are dissolved, ensuring that stirring does not cause excessive foaming of the solution, refer Figure 2-5.

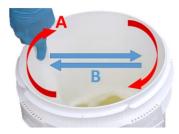


Figure 2-5 Dahlgren Decon mixing (19 L)

i. Carefully open the Dahlgren Decon Part B2 foil packet, taking care not to spill the contents of the packet.

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#### NOTE

Ensure the DD Part B1 solid is poured in the path of the stir rod and not directly in the centre of the bucket so as to prevent the build-up of undissolved solids within the solution.

j. While stirring the solution, gradually add the Dahlgren Decon Part B2 powder to the solution in the decon bucket, taking care to minimise the dust from the PES-solid powder, and place the empty packet to one side.

#### NOTE

The absence of any Dahlgren Decon Part B2 'sediment' present on the end of the stir rod after scraping the stir rod across the base of the bucket shall be used as an indicator of the step being completed (some small particles may remain).

#### NOTE

This mixing step may take approximately 180-240 seconds to complete, however this time will vary depending on ambient temperature.

#### NOTE

Addition of the Dahlgren Decon Part B2 solid will cause the temperature of the solution to rise.

#### NOTE

Once stirring has ceased, foaming within the liquid will settle and may develop a foam 'head' atop the solution which can be physically removed, or allowed to collapse either naturally or through intermittent agitation of the foam using the stir rod. If possible, allow any foam 'head' to subside once stirring is complete before pouring the solution into an applicator.

- **k.** Using the stir rod, continue to stir the solution for a minimum of 180 seconds using a combination of 'circular' (A) and 'cross' (B) stir rod movements until all Part B2 sediment is dissolved, ensuring that stirring does not cause excessive foaming of the solution and intermittently scraping along the base of the bucket so as to prevent the build-up of undissolved solids within the solution, refer Figure 2-5
- **I.** The DD solution is now ready to be poured out of the decon bucket into the 40 L basins, PSDS, MG300 sprayer and TDS as required.

## **SECTION 2**

#### **CHAPTER 3**

# SAFETY PRECAUTIONS

## **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information



Ensure the appropriate Personal Protective Equipment (PPE) is fitted correctly and worn at all times when working in a contaminated environment. Failure to do so could lead to personal injury or death.



Do not leave or dispose of waste in an area of operations. Dispose of all waste in accordance with Australian Defence Force (ADF) doctrine and local environmental laws and regulations, especially those related to chemical disposal. Failure to do so could lead to personal injury or death.

- **1.** Personnel are to don PPE prior to the preparation and operational use of Dahlgren Decon (DD) in order to reduce the risk of personnel coming into direct contact with DD; refer to the Safety Data Sheet (SDS) for the minimum PPE requirements.
- **2.** Personnel are to dispose of unused Dahlgren Decon (DD) as contaminated waste IAW the ESCM. Unused DD must not be disposed of in local waterways.

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## **SECTION 2**

#### **CHAPTER 4**

# **OPERATOR INSTRUCTIONS**

## **EQUIPMENT DECONTAMINATION - LIGHT**

#### **UNPACKING AND SET-UP**

#### NOTE

The following chapter contains illustrations with links to practical demonstrations of procedures for the ED-L Sub-system. A video play symbol can be seen on the relevant illustrations. Click on this symbol to play the attached demonstration.

# **Unpack ED-L Sub-System**

- **1.** Unpack each ED-L Sub-system Spacecase as follows:
  - **a.** Place the Spacecase on the ground in approximate position, on either side of the intended site layout.
  - **b.** Remove the bunding and place in position, buckle side facing up.
  - **c.** Remove all other components needed during setup and operation from the Spacecase.

# **Set-Up Foam Edge Bunding**

- **2.** Set-up the foam edge bunding as follows:
  - **a.** Release the securing buckle and unfold the bunding.
  - **b.** Position two open bundings, butted together, with one turned through 180 degrees as shown in Figure 4-1.

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Figure 4-1 Foam Edge Bunding Layout

## Set-Up Bilge Pump and Plastic Jerry

**3.** Set-up the Bilge Pump and Plastic Jerry as follows:



Ensure the appropriate PPE is worn when using the bilge pump in the presence of contaminated water against splashing hazard. Failure to do so may cause personal injury.



A full plastic jerry exceeds the maximum lift for one person. Operators should limit manual handling of a full plastic jerry. Failure to do so may cause personal injury.

- **a.** Attach the bilge pump hose to the bilge pump by pushing one end of the hose over the barbed thread connector on the pump body.
- **b.** When required, position the bilge pump and plastic jerry at the lowest collection point of the bunding; insert the free end of the bilge pump hose into an empty plastic jerry to transfer the by-product.
- **c.** Once designated for by-product capture, place the plastic jerry in a rolled-down waste bag for easy containment after the jerry is sealed. Mark with tape or other tools as necessary.

## **Set-Up Remaining Components**

**4.** Set-up the remaining ED-L components as follows:

- **a.** Place a 40 L basin in each bunding if the decontamination activities involve the dunking of equipment or weapons.
- **b.** Set-up the FiberTect roll as a tear away method in a location convenient for the operator.
- **c.** Position the waste bags, cloth tape and cable ties in a location convenient for the operator.

## Set-Up PSDS

- **5.** Set-up the PSDS as follows:
  - **a.** Position the PSDS applicator and all accessories adjacent to the designated bunding area Lay the components out on the ground and place the empty field bag back into the Spacecase.
  - **b.** Remove the plastic jerry from the Spacecase, locate a source of clean water and fill the jerry; place the jerry close to the working area.
  - **c.** If decontaminant is required for a PSDS, select the appropriate amount required from the DD sub-system; place the decontaminant close to the working area.
  - **d.** Refer to Paragraph 7 for details on filling the PSDS tanks and designating the applicators as PSDS 1 and PSDS 2.

# Assemble PSDS Applicator

- **6.** Using the PSDS applicator carry out the following procedure to prepare it for use, referring to the applicable Figures:
  - **a.** Stand the PSDS on a flat surface.

#### NOTE

Before carrying out any operation with the PSDS applicator ensure that the tank is completely depressurised.

- **b.** Referring to Figure 4-2, discharge any air pressure that may exist in the tank by pulling and holding the safety valve knob (1).
- **c.** Monitor the pressure gauge (2) and ensure the needle is reading zero before proceeding.
- **d.** Repeat step (b) if required.

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Figure 4-2 PSDS Applicator Cover

- **e.** Referring to Figure 4-3 Left, locate the hose connected to the base of the PSDS tank.
- **f.** Locate the spray lance and attach the open end of the hose via the quick connect coupling to the fitting, Figure 4-3 Right, on the lance.
- **g.** Check to ensure both fittings are secure.



Figure 4-3 Spray Lance Hose Fitting (Left: hose to tank, Right: hose to lance

- **h.** To remove the pump handle assembly from the tank, referring Figure 4-4, grasp the handle (1), apply pressure downwards and turn the handle in a counterclockwise direction to unscrew the threaded section of the handle assembly from the tank (2). Continue rotating the handle until the thread is fully undone and the handle assembly can be lifted clear of the tank.
- **i.** Place the handle assembly in a safe position on a flat surface close by.



Figure 4-4 PSDS Pump Handle Removal

#### Fill PSDS Tanks

**7.** Fill the PSDS tanks as follows, refer Figure 4-4:

#### NOTE

It is recommended that all PSDS spraying operations are conducted by a single operator, to reduce cross-contamination from by-product.

#### NOTE

With the handle assembly removed, the top of the PSDS tank is designed as a funnel to allow easy pouring of liquids into the tank.

- **a.** Designate the first PSDS applicator to provide the Environmental Clean function; attach a zip tie loosely around the pump handle to identify the applicator as PSDS 1.
- **b.** Pour ten litres of water from the first jerry into the PSDS 1 applicator tank. Then add two of the DD 650 mL Part A only (volume per pouch is 580 ml).

### NOTE

The PSDS tank holds approximately 11.5 L of liquid. Extra pumping may be required once application has begun.

**c.** Designate the second PSDS applicator to provide the Rinse function (PSDS 2).

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**d.** Pour ten litres of water into the PSDS 2 applicator tank.

**e.** With both applicator tanks filled, re-fit the handles and pressurise as follows:



When aligning the handle assembly with the thread on top of the tank be aware of cross-threading as this will cause damage to the equipment.

- (1) Pick up the handle assembly and align the thread of the handle with the thread of the tank.
- (2) Rotate the handle in a clockwise direction engaging the thread of the handle into the thread of the tank.
- (3) Continue rotating the handle until the thread is fully seated; tighten by hand.
- (4) Actuate the pump handle up and down to pressurise the tank until 6 bar is displayed on the pressure gauge.
- (5) Check that the system is pressurised and the spray lance is operating correctly by pointing the lance towards an area to be decontaminted and squeezing the trigger.

#### NOTE

If the liquid doesn't come out of the spray lance nozzle, refer to Section 3, Chapter 2 - Fault Finding for corrective procedures.

**f.** If liquid does come out of the spray lance nozzle, release the trigger. and place the spray lance on the ground.

#### Fill TDS

- **8.** Fill the TDS as follows:
  - **a.** Remove the sprayer from the MOLLE bag.
  - **b.** Unscrew the filler cap and fill each pressure sprayer with 650mL of correctly mixed Dahlgren Decon.

# CAUTION

Do not shake the Tactical Decontamination Sprayer (TDS) as this will cause foaming. Failure to do so may reduce the effectiveness of the Dahlgren Decontamination (DD).

- **c.** Replace the filler cap and return the sprayer to the MOLLE bag.
- **d.** Test the TDS operates correctly and emits a mist spray. Rotate the nozzle to adjust the spray pattern.
- **e.** To lock the TDS when not in use, lift the trigger away from the handle and push the red tab towards the front of the handle; this will prevent accidental activation of the pressure sprayer.

#### PSDS AND TDS OPERATION

## **Operational State**

- **9.** Prepare the ED-L Station for the decontamination procedures by completing set-up to Operational State Stand-By Mode as follows:
  - (1) Ensure PSDS 1 and PSDS 2 are prepared and filled as detailed in Paragraphs 6 and 7.
  - **b.** Ensure the TDS is prepared and filled as detailed in Paragraph 8; ensure DD solution is correctly mixed for TDS refills as required as detailed in Chapter 2 Preparation.
  - **c.** Ensure the FiberTect roll is set-up as a tear away method, in a readily accessible location.
  - **d.** Ensure the waste bags, cable ties and cloth tape are readily accessible; do not open packages until required.
  - **e.** Clear all items out of the path of incoming vehicles.

# **PSDS Operation**

**10.** Operate the PSDS as follows:

#### NOTE

Whilst operating the spray lance use both hands to keep control and focus the spray on the required area.

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**a.** Sling the tank using the shoulder straps, referring Figure 4-5, onto the operators back and adjust the straps to center the tank to a comfortable position.

- **b.** Pick up the spray lance and commence the decontamination task.
- **c.** If more liquid is required, carry out the procedure in Paragraph 7 to refill the tank as required.



Figure 4-5 PSDS Shoulder Straps
NOTE

If more rigorous cleaning of surfaces is required, refer to PSDS Accessory Usage in Paragraph 11.

- **d.** When spraying is completed, unsling the shoulder straps and place the PSDS applicator on a flat surface with the spray lance.
- **e.** Referring to Figure 4-2, pull the discharge valve knob (1) making sure that the pressure gauge (2) drops to 0 bar/PSI.
- **f.** Position the spray lance over the bunding to capture any discharge when disconnecting the hose.
- **g.** Supporting the spray lance at the trigger end, release the hose from the lance, allow any discharge from the lance or hose to drain into the bunding and place the lance and the hose on the ground.

#### NOTE

If there is any further leaked liquid from the disconnection of the hose from the lance wipe it up with a FiberTect wipe and dispose of the wipe as contaminated waste in accordance with the Disposal Plan.

**h.** Coil the hose loosely around the PSDS tank.

## **PSDS Accessory Usage**

- **11.** When the equipment decontamination involves contoured or obscured surfaces that are hard to access with the spray lance alone, there are two brush head accessories that can be utilised on a telescopic pole, refer Sect 1, Chap 2, Figure 2-5.
- **12.** To use the accessories carry out the following procedure:
  - **a.** Determine the most applicable brush shape that will suit the surface being scrubbed.
  - **b.** Collapse the telescopic pole to the minimum length.
  - **c.** Find the threaded end of the telescopic pole and place the threaded end of the chosen head against it.
  - **d.** Rotate the head clockwise onto the pole until the head is fully seated.
  - **e.** Adjust the telescopic length of the pole as required.

#### NOTE

Keep both hands on the telescopic pole and maintain control of the head so as not to splash excessive amounts of decontaminant.

**f.** Scrub the area required.

#### NOTE

Remove any decontaminant liquid from the pole or the head with a FiberTect wipe and dispose of the wipe as contaminated in accordance with the Disposal Plan.

**g.** Once complete, collapse the telescopic pole to the minimum length; remove the head and lay both on a flat surface.

## **TDS Operation**

- **13.** Operate the TDS as follows:
  - **a.** Pump the plunger of the pressure sprayer to pressurise the tank.

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**b.** Lift the trigger away from the handle and fold the red tab towards the rear of the handle.

**c.** Hold the TDS at a distance of 0.15 to 0.3 metre away from the target surface for optimum coverage; press and release the trigger to spray decontaminant as required.

#### NOTE

Ensure the spray is a mist by rotating the nozzle to adjust spray pattern.

#### NOTE

After operation, when the pressure sprayer is not in use, lift the trigger away from the handle and push the red tab towards the front of the handle; this will prevent accidental activation of the pressure sprayer.

### **DECONTAMINATION PROCESSES**



Ensure the appropriate PPE is worn when using the bilge pump in the presence of contaminated water against splashing hazard. Failure to do so may cause personal injury.



A full plastic jerry exceeds the maximum lift for one person. Operators should limit manual handling of a full plastic jerry. Failure to do so may cause personal injury.



Ensure all residual Dahlgren Decontaminant is removed from equipment by wiping with a clean FiberTect Wipe and/or rinsing if reuse of the equipment is required within the first eight hours of application. Failure to remove residual mixed Dahlgren Decontaminant may result contact skin irritation or inhalation which may cause irritation of the nose and throat and coughing.

# WARNING

Equipment undergoing decontamination shall be treated as potentially contaminated until testing shows no contamination and an assessment is made on the risk of continued use. Insufficient decontamination and subsurface contamination may result in exposure to personnel and result in personnel injury.

#### NOTE

The following process layouts have three inferred zones: Red (Dirty), Amber and Green (Clean). All contaminated items and individuals enter the station from the red zone. Decontamination activities occur in the amber zone. Once decontaminated, items and individuals cross through the checkpoint into the green zone. Any components that can remain uncontaminated are placed in the Green Zone.

#### **Vehicle Platform Decontamination Process**

- **14.** Conduct the Vehicle Platform Decontamination Process as follows:
  - **a.** Ensure vehicles enter the ED-L Station as shown in Figure 4-6.
  - **b.** Position the front of the vehicle over the bunding, allowing room for by-product to drain into the bunding.
  - **c.** Perform the Environment Clean procedure as follows:
    - (1) First operator is to perform environment clean only to areas of the vehicle positioned over the bunding, using PSDS 1.
    - (2) Second operator is to assist by scrubbing/agitating surfaces using the telescopic pole with suitable brush head, if required.
    - (3) Allow two minutes dwell time to elapse.
  - **d.** Perform the decontaminant application as follows:
    - (1) Second operator is to apply decontaminant to touch points and known contamination hot spots, using the TDS.
    - (2) Allow 15 minutes dwell time to elapse.
  - **e.** Perform the Rinse procedure as follows:
    - (1) First operator is to rinse decontaminant using the PSDS 2.

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(2) Second operator is to ensure all decontaminant is rinsed and to assist the First operator as required.

- **f.** Remove by-product from the bunding as follows:
  - (1) Empty the jerries of water as required.
  - (2) Place the nozzle of the bilge pump into the by-product at the lowest collection point of the bunding.
  - (3) Insert the free end of the hose into the mouth of the plastic jerry; pull the pump handle to transfer by-product into the jerry.
  - (4) Repeat until the bunding is emptied of by-product.



Figure 4-6 By-product Removal Process

- **g.** Ensure the first section of the vehicle is thoroughly cleaned and decontaminated before moving on to the next section.
- **h.** Keep the exit point of the station clear of personnel and obstacles.
- **i.** Continue decontamination by moving the vehicle forward, such that the next section of the vehicle is positioned over the bunding, referring Figure 4-7.
- **j.** Repeat the process until the whole vehicle has undergone the decontamination process.

**k.** Exit the vehicle from the ED-L Station and past the checkpoint.

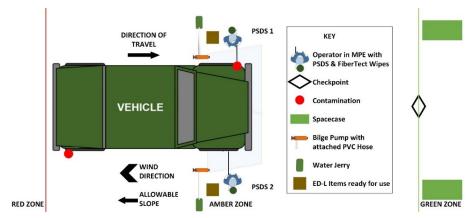


Figure 4-7 Vehicle Decontamination Process Layout

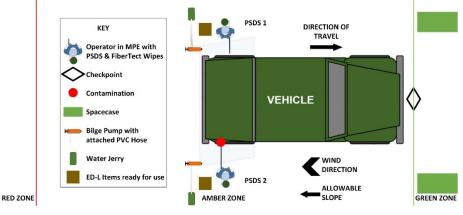


Figure 4-8 Vehicle Movement Through ED-L Station

## **General Equipment Decontamination Process**

- **15.** Conduct the General Equipment Decontamination Process as follows:
  - **a.** Set-up the site relative to the prevailing wind direction and ground slope as shown in Figure 4-8, where possible.

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#### NOTE

It is recommended that each operator remains in front of the respective bunding, to reduce cross-contamination from by-product.

- **b.** Place the equipment item for decontamination in the centre of the first bunding.
- **c.** Conduct gross decontamination of the equipment item using FiberTect wipes as required.
- **d.** Apply decontaminant using the TDS.
- **e.** Allow 15 minutes dwell time to elapse.
- **f.** Move the equipment item to the centre of the second bunding.
- **g.** Remove the decontaminant using FiberTect wipes.
- **h.** Move the equipment item out of the second bunding and past the checkpoint.
- **i.** Remove by-product from the bunding using the bilge pump as described in Paragraph 14f.

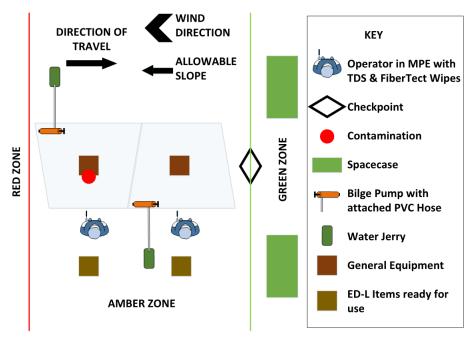


Figure 4-9 Equipment Decontamination Process Layout Weapon Decontamination Process

- **16.** Conduct the Weapon Decontamination Process as follows:
  - **a.** Set-up the site relative to the prevailing wind direction and ground slope as shown in Figure 4-9, where possible.

#### NOTE

Extra DD is required for the plastic basin dunk tub. It is recommended that the 19 L DD kit is sourced from the Decontaminant Sub-system

- **b.** Mix the DD in the kit's container, following the instructions in Section 2, Chapter 2 Preparation, Paragraph 6 (c) to (m), applying the procedure to the larger quantities of the 19 L DD kit.
- **c.** Pour the 19 L of DD into the first tub and place it in the first bunding.
- **d.** Pour the contents of jerry can full water into the second tub and place it in the second bunding.

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#### NOTE

It is recommended that each operator remains in front of the respective bunding, to reduce cross-contamination from by-product.

#### NOTE

Conduct a field strip of a weapon as required to complete the decontamination process.

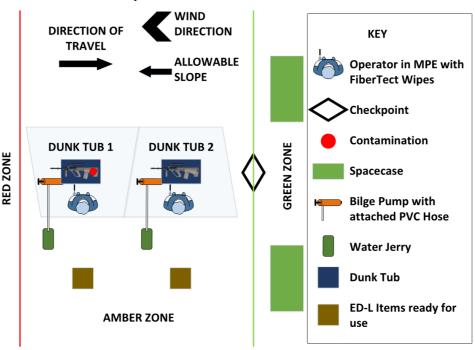


Figure 4-10 Weapon Decontamination Process Layout

- **e.** Holding the weapon in the hand over the first bunding, conduct gross decontamination using FiberTect wipes.
- **f.** Taking care to ensure that decontaminant does not overflow the operator's gloves, dunk the weapon in the first tub.
- **g.** Remove the weapon from the tub and place on the first bunding to dwell for 15 minutes.

**h.** Move the weapon to the second dunk tub to rinse in water, again taking care to ensure liquid does not overflow the operator's gloves.

- **i.** Remove the weapon from the tub and allow to dry or wipe dry with FiberTect wipes.
- **j.** Move the weapon out of the bunding and past the checkpoint.
- **k.** Remove by-product from the bunding as described in Paragraph 14f.

#### CLEANING EQUIPMENT

#### NOTE

The PSDS assembly including field bag is the only item in the ED-L Sub-system which is suitable for decontamination and re-use. All other items are not intended for re-use. Refer to Section 3, Chapter 4 – Decontamination, for details of decontaminating the PSDS.

## **PSDS Applicator Assembly Cleaning**

- **17.** Upon completion of decontamination activities, carry out the following procedure to clean the PSDS applicator assembly and accessories:
  - **a.** Using FiberTect wipes and the jerry to provide fresh water, clean the PSDS applicator surfaces.
  - **b.** Remove the pump handle from the PSDS tank, referring Paragraph 6.

#### NOTE

If there is decontaminant left over, transfer the remaining amount back to the Dahlgren container, if possible. Otherwise, dispose of the remaining decontaminant as contaminated waste in accordance with the Disposal Plan.

- **c.** Rinse the inside of the PSDS tank with water; empty the water and wipe the outside of the tank dry with the FiberTect wipes.
- **d.** Fill one third of the PSDS tank with fresh water.
- **e.** Refit the pump handle to the PSDS tank, referring Paragraph 7.
- **f.** Connect the spray lance, if disconnected, to the hose via the quick connect fitting.
- **g.** Actuate the pump handle to pressurise the tank until 6 bar is displayed on the pressure gauge (2) referring Figure 4-2.

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**h.** Pointing the spray lance away from personnel and directing spray into the bunding, press and hold the trigger of the spray lance, using the other hand to maintain control; flush any residual decontaminant from the hose and spray lance.

- i. Continue this step until all the water in the PSDS tank is used.
- **j.** Remove the pump handle from the PSDS tank, referring Paragraph 6.

#### NOTE

Dispose of any remaining liquid inside the tank as contaminated waste IAW the ESCM and repeat steps (a.) to (c.) as required.

- **k.** Refit the pump handle to the PSDS tank, referring Paragraph 7, but do not pressurise the tank.
- **I.** Disconnect the spray lance from the hose.
- **m.** Leave the hose connected to the PSDS tank.
- **n.** Clean the hose and spray lance with water and FiberTect wipes.
- **o.** Coil the hose around the PSDS applicator.
- **p.** Allow all equipment to dry or use FiberTect wipes to dry surfaces.
- **q.** Place the PSDS applicator and accessories on a flat surface together.

## Waste Disposal

- **18.** Dispose of waste products as follows:
  - **a.** Place all contaminated items into waste bags; seal the waste bags using zip ties and cloth tape.
  - **b.** Close the jerries by fitting the screw cap tightly; roll-up the waste bags around the jerries and seal using zip ties and cloth tape as required.
  - **c.** Dispose as contaminated waste in accordance with the Disposal Plan.

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## **SECTION 2**

#### **CHAPTER 5**

# PACKAGING, HANDLING, STORAGE AND TRANSPORTATION

#### **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information

1. The following paragraphs detail the defined packaging, handling, storage and transportation states and modes of the ED-L Sub-system.

## **Transport State / Storage State**

**2.** The ED-L Sub-system is classified in its transport/storage state when all the equipment and components are correctly packed within the Spacecase.

#### Stowed State

**3.** The ED-L Sub-system is classified in its stowed state when it matches the transport/stowage state.

## **Operational State**

- **4.** The ED-L Sub-system is classified in its operational state under the following modes and conditions.
- **5.** The ED-L Sub-system can be divided into two modes operating mode and standby mode. In the operational state consumables external to the ED-L Sub-system, including DD and water, are provided by the Decontamination Sub-system.
- **6.** The ED-L Sub-system is classified as in its operational state operational mode when a land platform or equipment is being processed through the ED-L Sub-system, the applicators are being operated and by-product is being captured.
- 7. The ED-L Sub-system is classified as in its operational state standby mode prior to entry of a land platform or equipment to the foam edge bunding. Applicators required for the process are filled but not pressurised or being sprayed. The equipment is laid out for platform decontamination, refer Figure 4-6 or equipment decontamination, refer Figure 4-8, and all components being easily accessible to the operators.
- **8.** The DD is expected to be provided with the ED-L Sub-system, however it is not considered part of the ED-L Sub-system and therefore is not identified in this state.

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## **ED-L Sub-system Pack-Up Instructions**

**9.** Carry out the following procedure to pack-up the ED-L Sub-system:

#### NOTE

Remove all the equipment and components from the PSDS field bag to facilitate the correct packing into the Spacecase.

- **a.** Fold the foam edge bunding as follows in preparation for packing:
  - (1) With the bunding laid flat, fold the short edge of the bunding inwards at the quarter width crease, referring Figure 5-1.
  - (2) Fold the long edge of the bunding inwards at the three quarter width crease, at the same time folding the bunding outwards at the centre crease, such that the tapered edge resembles a 'W' shape on completion, referring Figure 5-2.
  - (3) Fold the ends of the bunding inwards, clip the buckle and pull the loose strap end until the foam edges touch, referring Figure 5-3 and 5-4; place the bunding to the side ready for packing.
  - (4) Fold the buckled bunding in half with the buckle on the outside edge of the fold, referring to Figure 5-5.



Figure 5-1 Foam Edge Bunding - First Fold



Figure 5-2 Foam Edge Bunding - Second Fold



Figure 5-3 Foam Edge Bunding - Third Fold



Figure 5-4 Foam Edge Bunding - Buckled

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Figure 5-5 Foam Edge Bunding Folded for Storage

- **b.** Place the plastic basin in the bottom of the Spacecase against the left hand side, refer Figure 5-6.
- **c.** Fold the waste bags in half and place them adjacent them in the bottom of the Spacecase adjacent to the plastic basin, refer Figure 5-6.
- **d.** Place the bilge pump, PSDS applicator brushes and TDS (in the MOLLE bag) inside the plastic basin, refer Figure 5-6.



Figure 5-6 ED-L Packaging 1

**e.** Place the cloth tape, zip ties and bilge pump hose into the plastic basin, refer Figure 5-7.



Figure 5-7 ED-L Packaging 2

- **f.** Place the plastic jerry can in the remaining space in the plastic basin, refer Figure 5-8.
- **g.** Fold the PSDS field bag and place it on top of the zip ties in the plastic basin, refer Figure 5-8.
- **h.** Place the spray lance and telescopic pole between the front wall of the Spacecase and the plastic jerry can, refer Figure 5-8.
- **i.** Place the FiberTect wipes on top of the TDS, refer Figure 5-8. For ED-L Training, instead place microfiber wipes in stuff bag, cinch stuff bag, and place on top of TDS (not pictured).

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Figure 5-8 ED-L Packaging 3

- **j.** Place the bunding on top of the waste bags ensuring that all edges of the bunding are within the Spacecase and will not interfere with the closing of the Spacecase lid, refer Figure 5-9.
- **k.** The PSDS applicator is placed adjacent the plastic jerry can on top of the folded PSDS field bag ensuring the following:

#### NOTE

The PSDS hose assembly is not to be positioned between the PSDS applicator and the Spacecase wall.

- (1) Wrap the PSDS hose assembly around the top of the PSDS applicator to restrict movement of the hose.
- (2) The hose assembly and reservoir interface are facing downwards towards the PSDS field bag.
- (3) The PSDS shoulder straps are positioned flat against the Spacecase wall.



Figure 5-9 ED-L Packaging Final

- **l.** Close the Spacecase, ensuring nothing is pinched between the lid and the body, and fasten the latches.
- **10.** The ED-L Sub-system is now ready to be stowed for transport.

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## **SECTION 3 - OPERATOR SERVICING**

**CHAPTER 1 - SERVICING** 

**CHAPTER 2 – FAULT FINDING** 

**CHAPTER 3 – CONSUMABLES** 

**CHAPTER 4 – DECONTAMINATION** 

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## **SECTION 3**

#### **CHAPTER 1**

## SERVICING

### **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information

- 1. Inspect the contents of the two Spacecases in the Equipment Decontamination Light Sub-system and confirm the following parts are present in each Spacecase:
  - **a.** PSDS Applicator Assembly:
    - (1) Applicator Tank, Pump Handle and Shoulder Straps
    - **(2)** Hose
    - (3) Spray Lance
  - **b.** PSDS Applicator Accessories:
    - (1) Triangular Brush
    - (2) Oval Brush
    - (3) Telescopic Pole
  - c. PSDS Field bag
  - d. Tactical Decon Sprayer with MOLLE Bag
  - e. FiberTect Perforated Roll
  - **f.** Zip Ties (25 pack)
  - **g.** Cloth Tape Roll
  - **h.** Bilge Pump and Hose
  - i. Waste Bags (10 pack)
  - **j.** Foam Edge Bunding
  - k. Plastic Basin
  - I. Plastic jerry
  - m. Spacecase

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**2.** Tag any damaged items with a suspected fault tag and discontinue use. List any missing or damaged items and order replacements.

## **SECTION 3**

### **CHAPTER 2**

## **FAULT FINDING**

## **EQUIPMENT DECONTAMINATION - LIGHT**

## **General Information**

1. Table 2-1 provides fault finding procedures for PSDS Applicator Assembly.

Table 2-1 PSDS Applicator Fault Finding

| Symptom |                                    | Probable Cause                   | Action   |
|---------|------------------------------------|----------------------------------|--|
| 1       | Fluid not exiting from spray lance | Blockage or air bubble in system | Press the discharge valve to release the pressure from the tank. |
|         |                                    |                                  | Check that the pressure gauge is reading 0 bar/PSI.              |
|         |                                    |                                  | Actuate the hand pump to pressurise the PSDS tank to 6 bar.      |
|         |                                    |                                  | Operate the spray lance by pulling the trigger.                  |

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## **SECTION 3**

### **CHAPTER 3**

## **CONSUMABLES**

## **EQUIPMENT DECONTAMINATION - LIGHT**

## **General Information**

**1.** Table 3-1 contains the consumables used by the ED-L Sub-system.

Table 3-1 Consumables

| Description  | NSN              | Image  |
|--|------------------|--|
| Dahlgren Decon 22oz<br>(650ml) RTU<br>Configuration (shown)            | 6860-01-686-1981 |  |
| Dahlgren Decon 5L RTU<br>Configuration                                 | 6850-01-693-6541 | A B2   |
| Dahlgren Decon 19L RTU<br>Configuration                                | 6850-01-693-4424 | B1 minute 0 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0  |
| Dahlgren Decon<br>650 mL Part A<br>(volume per pouch:<br>580 ml)       | 6850-01-689-6843 | A  |
| FiberTect Perforated Roll<br>(20) 12" x 12" (300 mm x<br>300 mm) Wipes | 4230-01-693-4455 | FERTING TO THE PROPERTY OF THE |

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## **Training Consumables**

**1.** Table 3-2 contains the training consumables used by the ED-L System in the training environment.

Table 3-2 Training Consumables

| Description  | NSN              | Image             |
|--|------------------|-------------------|
| Wipes Roll – Training<br>(Inert), contains 20<br>microfibre cloths | 7920-66-167-1896 | ON COLUMN AND THE |

## **SECTION 3**

#### **CHAPTER 4**

## **DECONTAMINATION**

### **EQUIPMENT DECONTAMINATION - LIGHT**

#### General Information

**1.** The following paragraphs detail the decontamination procedures required for the ED-L Sub-system and all associated components.



Possible exposure to contaminants. The process identified only describes how to apply decontaminants, it does not guarantee decontamination of equipment. All equipment must be tested for residual contamination after any attempt to decontaminate. Failure to confirm proper decontamination may result in death.



The Dahlgren Decon (DD) fluids can cause injury to exposed skin, eyes, or airways. Ensure the appropriate Personal Protective Equipment (PPE) is worn at all times, failure to do so may lead to personal injury.

#### NOTE

The DD does not form part of the ED-L Sub-system.

- **2.** Waste capture and management must be considered prior to conducting the decontamination of ED-L Sub-system.
- **3.** It is recommended that all items to be decontaminated are processed through the equipment line of CD-M.
- **4.** The Wipe-Spray-Wipe or Wipe-Spray/Dunk-Rinse (for components that will fit into dunk tub) is deemed suitable for the PSDS 10MIL. The PSDS 10MIL contains no electrical or sensitive components.

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5. The Spacecase used to store all components of the ED-L Sub-system contains an inner foam layer and rubber seal. This foam layer and rubber seal may prove to be difficult to decontaminate as chemical, biological, radiological and nuclear contaminants may have absorbed into these components. It is recommended that a thorough risk assessment is conducted regarding the suitability to decontaminate the Spacecase. If decontamination of the Spacecase is conducted, a thorough detection of the foam and rubber areas must be conducted. Should the foam and rubber components of the Spacecase be contaminated to a level where decontamination may be ineffective, it is recommended that the Spacecase is discarded as contaminated waste.

**6.** Chemical and biological contamination will be decontaminated in a slightly different method to Radiological contamination. Refer to the correct table below for the applicable decontamination procedure.

## **Assumptions**

- **7.** All the ED-L Sub-system components will be utilised within the operational environment.
- **8.** The Spacecase has been deemed to be safe for decontamination and no contamination has penetrated the foam inserts or rubber seal.
- **9.** The ED-L Sub-system components have not sustained any damage during operational use.
- **10.** The ED-L Sub-system will undergo a non-technical inspection and refurbishment of consumables post use to confirm operation of the unit.

## Triage

- **11.** Carry out the following procedure on the ED-L Sub-system components and equipment:
  - **a.** Remove shoulder straps from PSDS applicator assembly and discard as contaminated waste.
  - **b.** PSDS triangular brush is to be discarded as contaminated waste.
  - **c.** PSDS oval brush is to be discarded as contaminated waste.
  - **d.** PSDS field bag is to be discarded as contaminated waste.
  - **e.** TDS with MOLLE bag is to be discarded as contaminated waste.
  - **f.** FiberTect wipes are to be discarded as contaminated waste.
  - **g.** FiberTect pad is to be discarded as contaminated waste.
  - **h.** Bilge pump is to be discarded as contaminated waste.

- i. Bilge pump tube is to be discarded as contaminated waste.
- **i.** Plastic basin is to be discarded as contaminated waste.
- **k.** Foam edge bunding is to be discarded as contaminated waste.
- I. Zip ties are to be discarded as contaminated waste.
- **m.** Cloth tape is to be discarded as contaminated waste.
- **n.** Waste bags are to be discarded as contaminated waste.
- **o.** The plastic jerry is to be discarded as contaminated waste.

## **Preparation for Decontamination**

- **12.** Ensure PSDS reservoir is empty of any fluids.
- **13.** Remove spray lance from PSDS applicator assembly.
- **14.** Remove pump handle assembly from the PSDS reservoir.

#### **Decontamination Process**

**15.** The Wipe-Spray-Wipe process identified in Table 4-1 is to be used to decontaminate some of the equipment within ED-L Sub-system as identified in Sect 1, Chap 1, Table 1-1. This process uses FiberTect wipes, DD, and the TDS applicator to complete the decontamination.

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**16.** Wipe-Spray-Wipe as applicable to component ingress protection.

Table 4-1 Chemical and Biological Decontamination

| Step                                       | Task Description   | Equipment                   |
|--|--|-----------------------------|
| 1<br>(Ready for use)                       | Operator will prepare the decontamination equipment and media.   | FiberTect wipes, DD and TDS |
| 2<br>(Preparation)                         | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.  |                             |
| 3<br>(Wipe)                                | Gross level contamination will be removed using FiberTect wipes in order to reduce the contamination level on the surface of the ED-L Sub-system. Operators to place all used FiberTect wipes into waste bags or as directed by In-service procedures. | FiberTect wipes             |
| 4<br>(Spray)                               | Operator to apply DD by spraying over the ED-L Sub-system and contaminated areas, if deemed operationally necessary. Operator to ensure sufficient coverage of spray depending on threat.  | DD and TDS                  |
| 5<br>(Dwell)                               | Operators are to ensure a dwell time of 15 minutes in order to allow the DD to neutralise the contaminant.   |                             |
| 6<br>(Wipe)                                | Following the above recommended dwell time, operator will wipe DD off the ED-L Sub-system using the FiberTect wipes ensuring that waste is secured as appropriate.   | FiberTect wipes             |
| 7<br>(Detection and<br>Risk<br>assessment) | All waste is to be secured.  Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.   |                             |

**17.** For radiological hazards, the Wipe-Spray-Wipe process is followed with the use of only DD part A instead of the complete DD mixture, to supress and remove the radiological hazards. The process detailed in Table 4-2 is to be used to decontaminate some of the equipment within ED-L as identified in Sect 1, Chap 1, Table 1-1.

Table 4-2 Radiological Decontamination

| Step                                       | Task Description   | Equipment                             |
|--|--|---------------------------------------|
| 1<br>(Ready for use)                       | Operator will prepare the decontamination equipment and media.   | FiberTect wipes, DD<br>Part A and TDS |
| 2<br>(Preparation)                         | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.  |                                       |
| 3<br>(Wipe)                                | Gross level contamination will be removed using FiberTect wipes in order to reduce the contamination level on the surface of the ED-L Sub-system. Operators to place all used FiberTect wipes into waste bags or as directed by In-service procedures. | FiberTect wipes                       |
| 4<br>(Spray)                               | Operator to apply DD Part A by spraying over the ED-L Sub-system and contaminated areas if operationally necessary. Operator to ensure sufficient coverage of spray depending on threat.   | DD Part A and TDS                     |
| 5<br>(Dwell)                               | Operators are to allow a dwell time of 2 minutes in order to allow the Part A to release the surface tension of the contaminant.   |                                       |
| 6<br>(Wipe)                                | Following the above recommended dwell time, operator will wipe DD Part A off the ED-L Sub-system using the FiberTect wipes ensuring that waste is secured as appropriate.  | FiberTect wipes                       |
| 7<br>(Detection and<br>Risk<br>assessment) | All waste is to be secured.  Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.   |                                       |

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**18.** The Wipe-Dunk/Spray-Rinse process identified in Table 4-3 is to be used to decontaminate some of the equipment within ED-L Sub-system as identified in Sect 1, Chap 1, Table 1-1. The difference with this process is that it uses the dunk tub and/or the TDS to apply the DD, with the final rinse step being completed with a PSDS 10MIL or dunk tub containing water only. Importantly, the equipment needs to be suitably rated for submersion and medium pressure spray without causing equipment damage.

Table 4-3 Chemical and Biological Decontamination – Wipe-Dunk / Spray-Rinse

| Step                                       | Task Description   | Equipment  |
|--|--|--|
| 1<br>(Ready for use)                       | Operator will prepare the decontamination equipment and media.   | FiberTect wipes,<br>DD, dunk tub, PSDS<br>applicator, TDS and<br>water |
| 2<br>(Preparation)                         | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.  |  |
| 3<br>(Wipe)                                | Gross level contamination will be removed using FiberTect wipes in order to reduce the contamination level on the surface of the ED-L Sub-system. Operators to place all used FiberTect wipes into waste bags or as directed by In-service procedures. | FiberTect wipes  |
| 4<br>(Dunk/Spray)                          | Operator to apply DD by dunking the ED-L Subsystem components into the DD dunk tubs or spraying with the TDS.  | DD, dunk tubs and<br>TDS   |
| 5<br>(Dwell)                               | Operators are to allow a dwell time of 15 minutes in order to allow the DD to neutralise the contaminant.  |  |
| 6<br>(Rinse)                               | Following the above recommended dwell time, operator will rinse the DD off the ED-L Subsystem components using the rinse dunking tubs or the PSDS Applicator.  | PSDS applicator,<br>dunk tubs and water                                |
| 7<br>(Detection and<br>Risk<br>assessment) | All waste is to be secured.  Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.   |  |

**19.** For radiological hazards, the Wipe-Spray-Rinse process is followed with the use of only DD Part A instead of the complete DD mixture, to supress and remove the radiological hazards. The operator will need to consider operating the PSDS Applicator at a lower pressure and/or stand-off distance, along with other application techniques, to avoid aerosolising the radiological particles. It is not recommended to dunk items due to the cross contamination risk associated with radiological particles. The process detailed in Table 4-4 is to be used to decontaminate some of the equipment within ED-L Sub-system as identified in Sect 1, Chap 1, Table 1-1.

Table 4-4 Radiological Decontamination – Wipe-Spray-Rinse

| Step                                  | Task Description   | Equipment   |
|---------------------------------------|--|---|
| 1<br>(Ready for use)                  | Operator will prepare the decontamination equipment and media.   | FiberTect wipes, DD<br>Part A, PSDS<br>applicator, TDS and<br>water |
| 2<br>(Preparation)                    | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.  |   |
| 3<br>(Wipe)                           | Gross level contamination will be removed using FiberTect wipes in order to reduce the contamination level on the surface of the ED-L Sub-system. Operators to place all used FiberTect wipes into waste bags or as directed by In-service procedures. | FiberTect wipes   |
| 4<br>(Spray)                          | Operator to apply DD Part A by spraying the ED-L Sub-system components with the TDS filled with the DD Part A solution.  | DD Part A and TDS   |
| 5<br>(Dwell)                          | Operators are to allow a dwell time of 2 minutes in order to allow the DD Part A to release the surface tension of the contaminant.  |   |
| 6<br>(Rinse)                          | Following the above recommended dwell time, operator will rinse the DD Part A off the ED-L Sub-system components using the PSDS Applicator.  | PSDS applicator and water   |
| 7                                     | All waste is to be secured.  |   |
| (Detection and<br>Risk<br>assessment) | Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.  |   |

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**20.** The environmental decontamination/gross wash – DD application – dwell – rinse process identified in Table 4-5 is to be used to decontaminate the larger equipment within ED-L Sub-system as identified in Sect 1, Chap 1, Table 1-1. In this process, the PSDS applicator is used to spray a soapy water mixture (water with DD Part A) in order to reduce the surface tension of the contaminant. The PSDS applicator is then filled with a complete DD mixture and is used to neutralise the threat. The final rinse step being completed with the PSDS applicator containing only water.

Table 4-5 Environmental Decontamination – Wash-Apply-Dwell-Rinse

| Step                                | Task Description  | Equipment                                      |
|-------------------------------------|---|--|
| 1<br>(Ready for use)                | Operator will prepare the decontamination equipment and media.  | DD, DD Part A,<br>PSDS applicator<br>and water |
| 2<br>(Preparation)                  | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.   |  |
| 3<br>(Environmental/<br>Gross Wash) | Operator to apply DD Part A and water by spraying over the contaminated areas with the PSDS. Operator to ensure sufficient coverage of spray depending on threat. Operator is to allow a 2 minute dwell time. | DD Part A. PSDS applicator and water           |
| 4<br>(DD<br>Application)            | Operator to apply DD by spraying the ED-L Sub-system components with the TDS applicator.  | DD and TDS<br>applicator                       |
| 5<br>(Dwell)                        | Operators are to allow a dwell time of 15 minutes in order to allow the DD to neutralise the contaminant.   |  |
| 6<br>(Rinse)                        | Following the above recommended dwell time, the operator will rinse the DD off the ED-L Subsystem components using the PSDS Applicator.   | PSDS applicator and water                      |
| 7                                   | All waste is to be secured.   |  |
| (Detection and Risk assessment)     | Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.                                       |  |

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**21.** For radiological hazards, the environmental decontamination/gross wash – DD application – dwell – rinse process is followed with the use of only DD Part A instead of the complete DD mixture, to supress and remove the radiological hazards. The operator will need to consider operating the PSDS applicator at a lower pressure and/or stand-off distance, along with other application techniques, to avoid aerosolising the radiological particles. The process detailed in Table 4-6 is to be used to decontaminate the following equipment within ED-L Sub-system as identified in Chap 1, Sect 1, Table 1-1:

Table 4-6 Radiological Decontamination – Wash-Apply-Dwell-Rinse

| Step                                       | Task Description  | Equipment                                      |
|--|---|--|
| 1<br>(Ready for use)                       | Operator will prepare the decontamination equipment and media.  | DD, DD Part A,<br>PSDS applicator<br>and water |
| 2<br>(Preparation)                         | Prepare the ED-L Sub-system for decontamination in accordance with Paragraphs 11 to 14.   |  |
| 3<br>(Environmental/<br>Gross Wash)        | Operator to apply DD Part A and water by spraying over the contaminated areas with the PSDS. Operator to ensure sufficient coverage of spray depending on threat. Operator is to allow a 2 minute dwell time. | DD Part A. PSDS applicator and water           |
| 4<br>(DD<br>Application)                   | Operator to apply DD by spraying the ED-L Sub-system components with the PSDS applicator.   | DD Part A and TDS                              |
| 5<br>(Dwell)                               | Operators are to allow a dwell time of 15 minutes in order to allow the DD to neutralise the contaminant.   |  |
| 6<br>(Rinse)                               | Following the above recommended dwell time, the operator will rinse the DD off the ED-L Subsystem components using the PSDS Applicator.   | PSDS applicator and water                      |
| 7<br>(Detection and<br>Risk<br>assessment) | All waste is to be secured.  Thorough detection and risk assessment must be conducted in order to ensure the decontamination process was successful and the equipment is safe for reissue and reuse.          |  |

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## **SECTION 4 - WARRANTY**

### **CHAPTER 1 – WARRANTY PROVISIONS AND CLAIMS**

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### **SECTION 4**

#### **CHAPTER 1**

### WARRANTY PROVISIONS AND CLAIMS

#### **EQUIPMENT DECONTAMINATION - LIGHT**

### Warranty

- **1.** The warranty for the performance and workmanship of the Equipment Decontamination Light Sub-system:
  - **a.** Is conditional on the product's reasonable use in accordance with this User Handbook; and
  - **b.** Commences on the day of the Commonwealth's Acceptance of the relevant product, ending 12 months thereafter.
- 2. Where any potential warranty claim arises, Leidos must be provided with all required documentation to assist in verifying the validity of the claim. This includes a completed Report on Defective or Unsatisfactory Materiel, which must contain details including, but not limited to, a description of the potential defect, details relating to the discovery of the potential defect, supporting photographic evidence and information regarding the use and storage of the product prior to the discovery of the potential defect.
- **3.** Once the necessary information outlined in Paragraph 2 is received, Leidos will arrange for the transport of the product to the Leidos Maintenance and Support Facility for assessment. Leidos will conduct a thorough inspection and assessment prior to the acceptance of the claim and commencement of any rectification activities, and inform the Commonwealth of the relevant findings.
- **4.** For any potential warranty claim raised by the Commonwealth, Leidos reserves the right to engage Third Party support to assist in the inspection and assessment processes outlined in Paragraph 3.

5.

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7610-66-166-2617 List of Abbreviations

### **LIST OF ABBREVIATIONS**

| Abbreviation | Definition |
|--------------|------------|
| Appreviation | Delin      |

DD Dahlgren Decon

ED-L Equipment Decontamination - Light

MOLLE Modular Lightweight Load-carrying Equipment

PPE Personal Protective Equipment

PSDS Portable Small Decontamination System

RTU Ready-to-Use

TDS Tactical Decon Sprayer

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