

## **Bitumen Deliveries** **Emergency Safety Shower - Guidance**

*The information in this guidance is given in good faith and belief in its accuracy at the time of publication, but does not imply any legal liability or responsibility by the Refined Bitumen Association. Before any new installation or modification is undertaken a relevant suitable and sufficient risk assessment should be carried out by the responsible companies/personnel involved.*

*The Health and Safety at Work Act 1974 requires employers to provide safe systems of work to ensure the safety of their employees and the public. Health and Safety Law imposes duties on both the supplier and the customer to provide safe systems of work. This guidance is intended to help both parties comply with their respective responsibilities during the delivery of bitumen products and is not intended to vary the legal responsibility of either party.*

This guidance paper is to assist customers when planning to install new or replace existing emergency safety showers for the Bitumen Offloading facilities on customer sites. It is not an exhaustive list of considerations and as such anyone considering installing safety shower equipment should consult with a competent engineer or safety professional.

### **Purpose:**

These guidelines provide uniform minimum requirements (to customers who take delivery of bitumen products in bulk and at elevated temperature) for the performance, use, installation and maintenance of emergency safety shower equipment.

### **Scope:**

These guidelines establish minimum performance and use requirements for safety shower equipment, for the emergency treatment of the eyes or body of a person who has been exposed to injurious substances. It covers only safety shower equipment.

### **Applicable Guidance:**

Refined Bitumen Association (RBA) – Code of Practice for the Safe Handling and Delivery of Bitumen.

American National Standard for Emergency Eyewash and Shower Equipment – ANSI Z358.1 - 2004

### **Applicable Regulations:**

Health & Safety at Work Act 1974

The Management of Health and Safety at Work Regulations 1999

Provision and Use of Work Equipment Regulations 1998.

The Control of Legionella Bacteria in Water Systems – ACOP, L8 (Third Edition 2000)

Control of Substances Hazardous to Health Regulations 2002 (COSHH)

It is important to recognise that in the interest of worker safety the emergency safety shower is not suitable for proper primary protection, against splashing injurious liquids. Workers should wear, as a minimum, the personal protective equipment stipulated in Appendix 1 of the RBA Code of Practice for Safe Handling and Delivery of Bitumen.

To support this statement the following should be considered prior to design / procurement / installation / use / maintenance:

### **Plumbed and Self-Contained Emergency Showers.**

#### **1 Performance of the shower.**

- A. The controlled flow of flushing water should be provided at low enough velocity so as not to be injurious to the user.
- B. The shower should be designed so that the flushing water column is not less than 208.3 cm or more than 243.8 cm from the surface on which the user stands.
- C. The shower equipment should be constructed of materials that will not corrode in the presence of the flushing water.
- D. Stored flushing water should be protected against airborne contaminants.
- E. The shower should be capable of delivering flushing clean water at a minimum of 75.7 litres per minute, for a minimum of 10 minutes. (*Note the RBA/ Eurobitume Guide to the Safe Delivery of Bitumen requires at least 10 minutes from point of activation for the treatment of bitumen burns*).
- F. If shut-off valves are installed in the supply line, provision should be made to prevent unauthorised shut-off, i.e. locked valves or remove valve wheels.
- G. The spray pattern should have a minimum diameter of 50.8 cm at a point of 152.4 cm above the surface on which the user stands, and the centre of the spray pattern shall be at least 40.6 cm from any obstruction. The flushing water shall be substantially dispersed throughout the pattern.

## **2 Performance of control valves.**

- A. The valve should remain open without the use of the operators hand until intentionally closed.
- B. The valve should be simple to operate and go “off” to “on” in 1 second or less.
- C. The valve should be resistant to corrosion.
- D. Manual or automatic actuator valves should be readily accessible and located not more than 173.3 cm above the level on which the user stands.

## **3 Shower enclosures**

- A. If shower enclosures are used then they should provide an unobstructed area of at least 86.4 cm in diameter.

## **4 Installation**

It is the installers' responsibility to ensure that the emergency shower should:

- A. Be assembled and installed in accordance with the manufacturers instructions.
- B. Be installed in an accessible location from the delivery flange, no more than 20m away or within 12 seconds to reach, and not less than 6m so as not to be within the 6m safety zone.
- C. If a safety shower by the nature of local obstructions, has to be installed within 6m of the bitumen delivery flange then the shower must be screened from the possible effects of bitumen spray, in the event of a leak or spillage.
- D. Installed at the same level as the hazard.
- E. The path of travel should be free from obstructions that may inhibit the immediate use of the shower.
- F. Be identified by highly visible signs that are visible in the area that the shower serves.
- G. The area around the shower should be well illuminated.
- H. Where the possibility of freezing exists, then appropriate steps should be taken to protect all the equipment including water supply lines, header tanks, internal pipework, etc from freezing. If the shower is inoperative due to frozen water a suitable temporary shower system must be in place.
- I. Deliver tepid flushing water between 16°C and 38°C. Although temperatures above 20°C should be avoided to reduce the likelihood of legionella bacteria growth, see the advice on the control of legionella bacteria below.
- J. Easily operated by an operative in distress (e.g. foot plate).
- K. Have installed a “Shower Alarm” that is both audible and visible, to operators responsible for the delivery process, and activates when the safety shower is used.
- L. Have a CCTV camera located overlooking the shower or the shower located in view of operators or staff on the site of installation.

## **5 Maintenance and training.**

- A. The shower manufacturer shall provide operation, inspection and maintenance instructions that come with the shower equipment. This information should be made readily accessible for maintenance and training personnel.
- B. Shower equipment should be activated as a minimum once per week for a period long enough to verify performance to that laid down in section 1 above and ensure that flushing water is available. This check is also to ensure that the lines are cleared of any sediment build up that could prevent flushing water reaching the shower head and minimise any micro-bacterial contamination due to standing water.
- C. Where header tanks are used, a weekly visual check should be carried out to ensure headers tanks are full and to check if water needs to be changed or supplemented.
- D. All shower equipment should have a thorough annual inspection to assure conformance to this guidance document.
- E. A record should be kept / documented for all maintenance checks described in B, C and D above.
- F. All employees / contractors that may be exposed to elevated temperature bitumen products shall be instructed in the location and the proper use of the emergency shower.

### **The Control of Legionella Bacteria in Water Systems – Approved Code of Practice, L8 (Third Edition 2000)**

*(This is sample guidance, it is highly recommended that this ACOP is reviewed and measures put in place to ensure compliance, by an appropriately qualified safety professional or competent water services contractor)*

The approved Code of Practice (ACOP) provides practical advice on the risk from exposure to legionella bacteria, and states that:

*“A suitable and sufficient risk assessment is required to identify and assess the risk of exposure to legionella bacteria from work activities and water systems on the premises and any necessary precautionary measure”.*

Safety shower equipment has the potential for legionella bacteria to manifest itself in the water systems feeding and within the equipment, therefore the above noted risk assessment is required.

The ACOP should be read in conjunction with the COSHH regulations concerning the risk of exposure to legionella bacteria, and as such an appropriate COSHH assessment should be carried out.

Where it is identified through risk assessment that there is a foreseeable risk of exposure from legionella bacteria, and the hazard cannot be eliminated, then a written scheme for the control of the bacteria should be in place, refer to the ACOP for explanation of the content of such a plan; however examples of appropriate controls are:

- ❑ *Controlling the release of the water spray.*
- ❑ *Avoidance of water temperatures and conditions that favour the proliferation of legionella bacteria, i.e. between 20° and 45°C.*
- ❑ *Avoidance of water stagnation.*
- ❑ *Avoidance of the use of materials that harbour bacteria.*
- ❑ *Maintenance of the cleanliness of the system.*
- ❑ *Use of water treatments techniques.*
- ❑ *Action to ensure correct and safe operation, and maintenance of the water system.*

All of the above controls can be relevant to an emergency shower installation.

Recommended inspection frequencies for showers and water feed services are detailed in the ACOP in Appendix 1, checklist 2 and 3, i.e. monthly, 6 monthly and annual requirements.