

32 Legionella

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Introduction

1. This chapter sets out the procedures and guidance for Defence personnel involved in activities and / or who manage facilities where water is used or stored and where there is a reasonably foreseeable risk of an accumulation of Legionella bacterium.
2. The control of Legionella is covered in Control of Substances Hazardous to Health (COSHH) Regulations and this applies in full to the MOD.
3. COSHH places a duty on Defence to prepare procedures, provide information and establish warning systems to protect Defence personnel, contractors and visitors in the workplace from exposure to Legionella; it also imposes duties on personnel concerning their own protection from such exposure.
4. Legionnaires' disease is a potentially fatal form of pneumonia which can affect anybody, but which principally affects those who are susceptible because of age, illness, immunosuppression, smoking etc. It is caused by the bacterium Legionella Pneumophila and related bacteria. Legionella bacteria can also cause less serious illnesses which are not fatal or permanently debilitating. The collective term used to cover the group of diseases caused by Legionella bacteria is Legionellosis.
5. Legionellosis is normally contracted by inhaling Legionella bacteria, either in tiny droplets of water or droplet nuclei (particles left after water has evaporated) contaminated with Legionella deep into the lungs. The incubation period ranges between two and ten days and usually begins with a headache, muscular pain and a general feeling of being unwell. These symptoms are followed by high fever (with temperatures often greater than 39.5°C) and shaking chills. Nausea, vomiting and diarrhoea may occur. On the second or third day dry coughing develops and is often accompanied by breathing difficulties. Effective treatment may be achieved by the use of antibiotics. There have been no reports of person to person transmission of Legionnaires'

disease.

6. Legionella bacteria are common and can be found naturally in environmental water sources such as rivers, lakes and reservoirs, usually in low concentrations, however the risk of inhalation of the bacteria from these sources is very low.
7. The following water systems commonly found within Defence present a potential risk for inhalation of Legionella bacteria (not an exhaustive list):
 - cooling towers;
 - evaporative condensers;
 - hot and cold water services;
 - showers (particularly emergency showers);
 - eye wash sprays;
 - sprinklers and hose reel systems;
 - lathes and machine tool coolant systems;
 - swimming pools;
 - hydrotherapy units;
 - vehicle wash systems;
 - high pressure hose systems;
 - fountains and water features; and
 - dental equipment.

Roles and Responsibilities

Procurement or Acquisition

8. Procurement and acquisition teams, and local purchase officers should ensure that equipment and platforms procured that incorporate water systems are engineered to minimise the risk of exposure to Legionella bacteria. Information for the safe use and maintenance of water systems should be provided to the Accountable Person.

Infrastructure / Asset Owner / Manager

9. The infrastructure / asset owner / manager (called a “Duty Holder” in legislation but hereafter referred to as the “Accountable Person”) to whom the statutory duty falls for the management of the risk of exposure to Legionella bacteria is defined in the HSE approved code of practice (ACOP L8) as the person who has control of the premises¹ or systems (responsible for its maintenance). The responsibility of an Accountable Person will be dependent on how the infrastructure or asset is managed but duties will normally fall within one of the following constructs:

¹ Which may be the Head of Establishment

- a) Defence owned premises and estate – the Defence contract manager for the Maintenance Management Organisation (MMO) contract;
- b) Defence managed mobile and portable or transportable assets (ships, water bowzers, mobile showers, etc.) – Commanding Officer and / or the military Duty Holder they report to; and
- c) PFI owned or managed premises and assets – Leaseholder.

10. The Accountable Person should ensure that a Legionella Management Plan (LMP) defining the management arrangements and lines of communication to control the risks of proliferation of Legionella bacteria in water systems is put in place, maintained and reviewed. The LMP and associated risk assessments should be communicated to all Defence personnel, visitors and / or contractors etc who may be exposed to the bacteria from water systems.

11. The Accountable Person should consult with Defence personnel, Trades Union and employee safety representatives on the identified risks on the exposure to Legionella bacteria and on the measures and actions taken to control the risks. An example of an LMP is contained in Defence Infrastructure Organisation (DIO) Policy Instruction 01/15 - Management of Legionella Bacteria in DIO Maintained Assets.

12. A competent² “Responsible Person” (RP)³ should be appointed by the Accountable Person to provide them with advice and take day-to-day managerial responsibility for the implementation and monitoring of the LMP; and provide assurance to the Accountable Person that their responsibilities are being discharged.

13. Upon notification of an incident which may / has resulted in an exposure to Legionella bacteria or persons contracting Legionellosis; the Accountable Person shall take immediate action to identify and isolate the source if it is from a Defence premises or asset. As a reportable disease, the incident shall be reported using TLB reporting systems (Chapter 16), for onward notification to inform the Health and Safety Executive, the Local Authority Environmental Health Officer, the Trades Union and employee safety representatives, etc. Any Defence personnel, visitors and contractors who may be at risk should be identified and advised to be assessed by either their Medical Officer (Service personnel) or their General Practitioner (civilian personnel) and an investigation undertaken in accordance with JSP 375, Volume 1, Chapter 16.

Responsible Person (RP)

14. The RP should be a competent person normally from within the line management chain of the Accountable Person and have sufficient authority to act on their behalf. The RP should possess sufficient knowledge of the water systems to ensure that

² Person who has sufficient qualification, training, experience and knowledge of the subject and is aware of their own limitations

³ A person to take day-to-day responsibility for controlling any identified risk from legionella bacteria, It is important for the responsible person to have sufficient authority, competence and knowledge of the installation to ensure that all operational procedures are carried out effectively and in a timely way.

they are operated and maintained in a safe, timely and effective manner. The RP as custodian of the LMP should develop, maintain it, and bring it to the attention of all stakeholders.

15. The RP should ensure that suitable and sufficient Control of Substances Hazardous to Health (COSHH) risk assessments (JSP 375, Volume 1, Chapter 11) are conducted to identify and assess the risk of exposure to Legionella (in accordance with HSE L8), that suitable control measures are identified, and that significant findings are recorded in the LMP.

16. The RP should ensure that all the appropriate control measures are applied (e.g. engineering controls, cleaning protocols), monitored for effectiveness, any weaknesses identified are corrected and immediate action taken to report any serious issues to the Accountable Person. Regular inspections should be undertaken to monitor the condition of the water systems and any revised actions recorded in the LMP.

17. The primary objective is to avoid conditions which permit Legionella bacteria to proliferate and to avoid creating a spray or aerosol which can then be inhaled. Example of control measures include:

- a) maintenance of water temperature (avoid temperatures between 20oC and 45 oC) (see figure 3);
- b) avoidance of water stagnation;
- c) avoid use of material in the system which can harbour or provide nutrients for bacteria and other organisms.

Legionella Temperature Range:

0 to 6 degrees is too cold for Legionella to survive.

At 10 to 20 degrees or 42.8 Farenheit Legionellae can survive but can't multiply.

At 20 to 45 degrees or 68 to 95 Farenheit Legionellae multiplication range, optimum temperature is 37 degrees.

At 45 to 60 degrees or 95 to 140 Farenheit Legionellae can survive but cannot multiply.

At 60 to 100+ degrees or 140 to 212 Farenheit is too hot for Legionellae to survive.

18. Upon notification or discovery of an incident which may have or has resulted in exposure to Legionella Bacteria or persons diagnosed as having contracted Legionellosis; the RP should immediately inform the Accountable Person.

19. The employment of contractors or consultants does not absolve the Accountable Person of their overall responsibility for ensuring Legionella management activities are carried out. Therefore, the RP should take reasonable steps to satisfy themselves as to the competency of contractors / consultants employed on

Legionella risk management activities or for specialist advice on behalf of the Accountable Person.

Commanding Officer (CO) / Head of Establishment (HoE)

20. The CO / HoE should ensure that a suitable LMP covering the totality of each establishment / vessel is prepared, implemented and maintained. This is to be achieved through the compilation and review of Legionella management arrangements put in place by the CO / HoE and other Defence, MMO or third party (e.g. tenants) Accountable Persons. The LMP should be a compilation of all premises / vessels, vehicles, plant and equipment; it should identify the measures that must be taken to ensure the risks are properly managed.

21. The CO / HoE should lead regular consultation with all other Accountable Persons (e.g. users and maintainers of premises, equipment, vehicles and vessels) to ensure that any changes of use, occupancy etc that may impact on the required Legionella control measures to be implemented are communicated and contribute to the development and upkeep of the LMP.

22. The LMP should be reviewed at regular intervals (at least six monthly) to confirm the information remains accurate and monitored for effectiveness of actions detailed, and the review recorded.

Manager

23. Managers should ensure that where a risk assessment identifies within their area of responsibility, a risk of exposure to Legionella bacteria that it is brought to the attention of Defence personnel, visitors / contractors under their control and that any required control measures are implemented and monitored for effectiveness; and as appropriate that maintenance and inspection regimes are adhered to. The presence of Legionella bacteria is often found in vehicle water reservoirs; the addition of certain types of screen wash can act as an inhibitor reducing the growth of the bacteria.

24. Adequate information, instruction and training should be provided to Defence personnel who undertake duties for the use, management and maintenance of water supplies and protective measures where necessary are applied.

25. A suspected or confirmed case or outbreak⁴ of Legionellosis (e.g. as confirmed by a GP or medical practitioners note) shall immediately be reported to the Accountable Person, to the HSE under RIDDOR, and in accordance with JSP 375, Volume 1, Chapter 16. In Scotland, confirmed cases of Legionellosis are also notifiable under the Public Health (Notification of Infectious Disease)(Scotland) Regulations.

All Personnel

⁴ An "outbreak" is two or more confirmed cases of Legionellosis occurring in the same locality within a six month period.

26. Defence personnel should co-operate with managers and comply with all control measures put in place to reduce exposure to Legionella and undertake any training requirements identified for the safe implementation of those control measures.

27. Defence personnel with specific duties for operation and maintenance of water systems should be competent, having sufficient training, experience and knowledge; have appropriate supervision; and understand their own responsibilities. Refresher training should be undertaken as and when required (e.g. if there is a significant change / modification to the water system or procedures).

28. Defence personnel should report any suspected / confirmed case of Legionella to their manager, co-operate in any investigation and contact their Medical Officer (Service personnel) or their General Practitioner (civilian personnel) for further advice.

Retention of Records

29. All records including the Unit / Establishment Register, Risk Assessments, etc. should be kept in accordance with HSE L8 and JSP 375, Volume 1, Chapter 39 (Retention of Records) unless a stricter requirement is specified in local procedures for example, DIO PI 01/15 or BRd 820 Potable Water Management Chapter 6.

Related Documents

30. The following documents should be consulted in conjunction with this chapter:

a. JSP 375, Volume 1;

- Chapter 08 - Risk Assessment;
- Chapter 11 - Hazardous Substances;
- Chapter 16 - Accidents/Incident Reporting and Investigation; and
- Chapter 39 - Retention of Records.

b. Other MOD Publications;

- DSA01.1 – Defence Policy for Health, Safety and Environmental Protection;
- DSA01.2 Chapter 2 – Requirement for Safety and Environmental Management Systems in Defence;
- Defence Infrastructure Organisation (DIO) Policy Instruction 01/15 - Management of Legionella Bacteria in DIO Maintained Assets; and
- Royal Navy BRd 820: Potable Water Management.

c. British Standards – these can be accessed via the Dstan site⁵;

- BS 6700.

⁵- Access to British Standards is via the Dstan site: <http://dstan.uwh.diif.r.mil.uk/sol/index.htm>

d. Legislation and Guidance;

- [Health and Safety at Work, etc Act;](#)
- [HSE L5 – Control of substances hazardous to health;](#)
- [Water Supply \(Water Fittings\) Regulations;](#)
- [HSE L8 - Legionnaires' disease: The Control of Legionella bacteria in water systems;](#)
- [HSE INDG458 - Legionnaires' disease: A guide for dutyholders;](#)
- [The Chartered Institution of Building Services Engineers, Technical Memorandum TM13: Minimising the risk of Legionnaires' Disease;](#)
- [The Notification of Cooling Towers and Evaporative Condensers Regulations.](#)

Annex A Legionella Risk Management Flow Chart

