

BOHS

British Occupational
Hygiene Society

The Chartered
Society for Worker
Health Protection

P904 Proficiency Qualification

**Legionella - Management and
Control in Leisure, Display,
Therapy and Other Non-
Industrial Water Systems**

Qualification Specification

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Section 1

About BOHS

BOHS - the Chartered Society for Worker Health Protection

BOHS is the Chartered Society for Worker Health Protection. Our vision is to create a healthy working environment for everyone by preventing exposure to hazardous substances in the workplace.

Founded in 1953, we have developed over the last 64 years into a highly respected and influential body on workplace health issues, working closely with organisations in the UK and overseas to promote our vision. We are a registered charity, professional society and a member of the International Occupational Hygiene Association which is recognised as a non-government organisation by the International Labour Organisation (ILO) and the World Health Organization (WHO).

We were awarded a Royal Charter in 2013 in recognition of our pre-eminent role in protecting worker health.

BOHS is a membership organisation, open to anyone who has an interest in workplace health issues, and we have over 1700 members in 60 countries.

BOHS qualifications – the quality choice

We are the leading awarding body in our field. Our UK courses and qualifications are recognised and respected by independent agencies such as the Health and Safety Executive (HSE) and the United Kingdom Accreditation Service (UKAS) and further afield by industry and employers worldwide. Over 50,000 people have taken one of our qualifications through our network of training providers which offer engaging, challenging and practical courses.

Our courses and qualifications are overseen by a team of highly experienced professionals who are dedicated to developing the competence and career opportunities for the many thousands of people who play a key role in protecting worker health, in diverse fields such as asbestos, legionella and control technologies.

Information about all our qualifications is available from our website:

www.bohs.org/qualifications-training/bohs-qualifications/

Section 2

P904 at a glance

What is the objective?

To provide an overview of the health risks of legionella infection, and how it can be controlled in leisure, display, therapy and other non-industrial water systems.

Who is it for?

Anyone responsible for assessing and controlling legionella risks in non-industrial water systems. This includes:

- Dutyholders and other responsible persons.
- Legionella consultants.
- Water system operatives and technicians.
- Health and safety practitioners.
- Occupational hygienists.

What are the entry requirements?

Candidates must have successfully completed *P901 – Legionella - Management and Control of Building Hot and Cold Water Services* before taking P904.

What are the main subject areas?

- Legislation and guidance.
- Leisure, recreational and healthcare facilities: design and operations.
- Risk assessment.
- Water treatment.
- Operational control.
- Other risk systems.
- Record keeping.

How long does it take?

Normally one day.

What level is it?

Level 4 in the BOHS qualifications framework.

How do candidates pass it?

Candidates must pass two parts within 12 months:

- Written Theory examination.
- Report submission.

Section 3

Background to the qualification

BOHS aims to protect worker health through promoting the science and practice of occupational hygiene. By identifying and controlling health risks in the workplace, we can reduce the levels of occupational ill health.

Legionella proliferation is still a severe health risk in both domestic and non-domestic water systems. Exposure to legionella bacteria through inhalation of contaminated water droplets can result in serious health effects for workers, which in some cases can be fatal. The Legionnaires' disease outbreak in Edinburgh in 2012 highlighted just how serious it can be; it caused four deaths and 92 cases of illness.

BOHS' suite of legionella qualifications gives candidates the knowledge to identify and control legionella risk in water systems, to a standard which prevents ill health. *P904 - Legionella – Management and Control in Leisure, Display, Therapy and Other Non-Industrial Water Systems* focuses on assessing legionella risk in leisure, therapy and healthcare facilities (such as spa pools and swimming baths), and how to control exposure.

Section 4

Key features of the qualification

Objective

The qualification is designed to improve the knowledge required by legionella risk assessors, up to a standard which is recognised as preventing ill health by minimising the risk of exposure to legionella bacteria.

Target audience

The qualification is suitable for anyone who:

- ☒ Manages legionella risk in non-industrial water systems. This includes:
 - Dutyholders and other responsible persons.
 - Legionella consultants.
 - Water systems operatives and technicians.
- ☒ Is responsible for controlling health risks in the workplace, such as occupational hygienists and health and safety practitioners.

Entry requirements

Candidates must have successfully completed *P901 – Legionella - Management and Control of Building Hot and Cold Water Services*. This pre-requirement is waived where both P901 and P904 courses are run on subsequent days or as a combined course.

Candidates are also expected to have a working knowledge of the following guidance documents:

- L8 (2013), Legionnaires' disease: The control of legionella bacteria in water systems, Approved Code of Practice and guidance, HSE.
- HSG282 (2017), Control of legionella and other infectious agents in spa-pool systems, HSE
- HSG274 (2014), Legionnaires' disease - Technical guidance Part 3: The control of legionella bacteria in other risk systems, HSE

Candidates will also need basic literacy and numeracy skills.

Age range

There is no age restriction on candidates taking the qualification, but there may be restrictions on the age requirements to work as a legionella risk assessor.

Level

The level of a qualification indicates the relative complexity and depth of knowledge and skills required to attain the qualification.

This qualification is set at level 4 in the BOHS qualifications framework.

Fees

The examination fee for each candidate is published on the BOHS website:
www.bohs.org/qualifications-training/examination-fees/

Section 5

Delivering the qualification

Teaching and learning time

The P904 course is normally conducted over one day, which includes at least 6 hours of teaching time.

Tutors

The course should be taught by tutors who are experienced and qualified/certified legionella risk assessors or occupational hygienists. As a guide, tutors will typically have:

- ☒ At least three years' current experience in assessing water systems for legionella risk;
- ☒ A recognised legionella qualification or a professional occupational hygiene qualification/certification such as:
 - BOHS Certificate of Competence (Legionella), or as a minimum the P904 qualification;
 - BOHS Certificate of Operational Competence (CertOH);
 - BOHS Diploma of Professional Competence (DipOH).

This list is not necessarily exhaustive or definitive.

Teaching resources

Training providers must have the following facilities and equipment:

- ☒ Drawings and photographs of relevant installations, water sampling and test equipment.

Support for teaching and learning

BOHS provides:

- ☒ A Candidate Support Pack, which includes report submission requirements.
- ☒ Example Written Theory examination questions for the tutor.

Language

The examinations are provided in English only.

Section 6

Syllabus

The qualification is structured into seven sections, each with an indicative time allocation:

Section	Syllabus section	Time allocation
1	Legislation and guidance	5%
2	Leisure, recreational and healthcare facilities: design and operations	30%
3	Risk assessment	20%
4	Water treatment	15%
5	Operational control	10%
6	Other risk systems	15%
7	Record keeping	5%

1 Legislation and guidance [5%]

Educational objectives

Candidates should have an understanding of the key legislation and guidance documents which outline good practice requirements for legionella risk control.

- 1.0.1 Acts and Regulations.
- 1.0.2 Approved codes of practice, HSE guidance notes, British Standards. Other industry-accepted good practice sources.

2 Leisure, recreational and healthcare facilities: design and operations [30%]

Educational objectives

Candidates will learn the basics behind the design, commissioning and operation of the non-industrial water systems below:

- 2.0.1 Types and designs of spa pools including hot tubs (domestic version of a spa pool), whirlpool baths and hydrotherapy pools.
- 2.0.2 Recreational, leisure and competition swimming pools and their support facilities.
- 2.0.3 NHS premises requirements and healthcare facilities (HTM 04).
- 2.0.4 Systems using thermostatic mixing valves [TMV] (e.g. multi-head sports hall systems).
- 2.0.5 Emergency showers and emergency sprinkler systems.

3 Risk assessment [20%]

Educational objectives

Candidates will learn how to carry out a legionella risk assessment in accordance with COSHH requirements, and understand who is responsible for carrying out these assessments.

- 3.0.1 Roles of the named dutyholder and responsible person.
 - 3.0.2 Key components of the risk assessment, including COSHH requirements and system schematics etc.
 - 3.0.3 General design considerations and operating procedures.
-

4 Water treatment [15%]

Educational objectives

Candidates will learn the different techniques used to thoroughly clean and disinfect water systems, to a standard which prevents legionella proliferation.

- 4.0.1 Routine cleaning and disinfection.
 - 4.0.2 Scale control, the hardness cycle and base exchange softening.
 - 4.0.3 Brief summary of corrosion control, including common corrosion inhibitors.
 - 4.0.4 Water chemistry, pH control, use of biocides.
 - 4.0.5 Dissolved solids control, including concentration factor and system bleed.
 - 4.0.6 Microbiological control, including oxidising/non-oxidising biocides and alternative treatment techniques.
-

5 Operational control [10%]

Educational objectives

Candidates will understand the routine checks which need to be carried out on water systems, and at which time intervals this should be completed.

- 5.0.1 Weekly, monthly, quarterly, six monthly and annual tasks.
 - 5.0.2 Routine bacteriological testing, with assessment of limitations of this data and control levels.
 - 5.0.3 Records: the detail required and retention.
-

6 Other risk systems [15%]

Educational objectives

Candidates will learn how to apply the legionella control techniques used for spa and hydrotherapy pools to other high-risk non-industrial water systems; such as:

- 6.0.1 Air handling units and humidifier systems.
- 6.0.2 Fountains and water features.

- 6.0.3 Solar and heat recovery systems.
 - 6.0.4 Car washing and power jet systems.
 - 6.0.5 Large domestic-style water systems, such as care homes and other workplace facilities.
-

7 Record keeping [5%]

Educational objectives

Candidates will be given an overview of the standards required for recording legionella risk assessments.

- 7.0.1 Regulatory requirements for record keeping.

Section 7

References and further reading

1	BS 7592 (2008), Sampling for Legionella bacteria in water system - Code of Practice, BSI
2	BS 8580 (2010), Water quality: Risk assessments for Legionella control - Code of Practice, BSI
3	HSG274 (2014), Legionnaires' disease - Technical guidance, HSE
4	HSG274 (2014), Legionnaires' disease – Technical guidance Part 2: The control of legionella bacteria in hot and cold water systems, HSE
5	HSG274 (2014), Legionnaires' disease - Technical guidance Part 3: The control of legionella bacteria in other risk systems, HSE
6	HSG282 (2017), Control of legionella and other infectious agents in spa-pool systems, HSE
7	HTM01-05 (2013), Health Technical Memorandum 01-05: Decontamination in primary care dental practices, Department for Health
8	HTM04-01-Part A (2016), Health Technical Memorandum 04-01: Safe water in healthcare premises - Part A: Design, installation and commissioning, Department for Health
9	HTM04-01-Part B (2016), Health Technical Memorandum 04-01: Safe water in healthcare premises - Part B: Operational management, Department of Health
10	INDG 458 (2012), Legionnaires' disease: A brief guide for duty holders, HSE
11	L8 (2013), Legionnaires' disease: The control of legionella bacteria in water systems, Approved Code of Practice and guidance, HSE
12	PWTAG (2016), Code of Practice for Swimming Pool Water – 2016

HSE guidance is reviewed and revised periodically. Training providers should check that the publications listed above are the current versions.

Useful websites

All the Health and Safety Executive (HSE) publications listed above are available as free downloads from the HSE website: www.hse.gov.uk/legionnaires .

Section 8

Achieving the qualification

Candidates are required to pass two mandatory components to be awarded the qualification: one written examination and one risk assessment report.

Written examination

- Written theory examination.

Assessment

- Risk assessment report.

Written theory examination

The written theory examination enables candidates to demonstrate that they have attained the breadth and depth of knowledge which necessarily underpins good practice in legionella risk control.

The examination comprises 20 short-answer questions to be answered in 60 minutes. Short-answer questions require candidates to give brief answers, sometimes as bullet points or calculations. All questions are worth 4 marks and candidates may be awarded between 0 and 4 marks per question. Candidates should attempt all questions as no marks are deducted for incorrect answers.

The pass mark is 50%.

The examination covers sections 1 to 7 of the syllabus in proportion to the time allocation given for each section. This gives a question allocation as follows:

	Section	Number of questions
1	Legislation and guidance	1
2	Leisure, recreational and healthcare facilities: design and operations	6
3	Risk assessment	4
4	Water treatment	3
5	Operational control	2
6	Other risk systems	3

7	Record keeping	1
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The sections are clearly marked in the examination paper.

The written theory examination is a closed-book examination, which means that candidates are not permitted to have access to any external materials or text books.

Invigilation

Written Theory examinations are carried out in controlled conditions, to help ensure that all candidates demonstrate their true level of attainment. BOHS will appoint an independent invigilator to oversee the examination.

Marking and results

All examination papers are marked by BOHS.

Borderline fail results are automatically re-marked by a second marker.

Candidates receive their results in writing from BOHS. The results are reported as pass or fail plus a percentage.

Training providers are sent a list of results for all candidates on a course.

Feedback

Candidates receive feedback on their examination performance. For example, the feedback for a written theory examination in which a candidate scored 71% would be shown as follows:

Syllabus Area		Result	
1	Legislation and guidance	4/4	(100%)
2	Leisure, recreational and healthcare facilities: design and operations	12/24	(50%)
3	Risk assessment	12/16	(75%)
4	Water treatment	12/12	(100%)
5	Operational control	6/8	(75%)
6	Other risk systems	10/12	(80%)
7	Record keeping	1/4	(25%)
Total		57/80	(71%)

Training providers receive feedback on the performance of all candidates.

Written Exam Performance against syllabus		Number of candidates in each scoring band		
		0-49%	50-75%	76-100%
142: Written Theory	1: Legislation and guidance	1	6	1
142: Written Theory	2: Leisure, recreational and healthcare facilities: design and operations	2	5	1
142: Written Theory	3: Risk assessment	2	6	0
142: Written Theory	4: Water treatment	1	5	2
142: Written Theory	5: Operational control	1	5	2
142: Written Theory	6: Other risk systems	1	5	2
142: Written Theory	7: Record keeping	1	5	2

Resits

Candidates may re-sit the Written Theory examination, but must pass the whole qualification (including risk assessment report) within 12 months of the original sitting.

Risk assessment report

Candidates must demonstrate that they have the necessary knowledge to assess and control legionella risk in non-industrial water systems. They are required to carry out a field assessment of a water system (either under their direct or indirect control) and compile a full risk assessment report.

The report submitted must be the candidate's own work. Where the work is carried out under supervision, the supervisor must sign a statement to confirm that the work is that of the candidate only.

Report contents

The assessed water system must involve equipment used in non-industrial water systems, such as:

- Multiple shower facilities (e.g. in hotels, care homes etc.).
- Spa baths.
- Car washing facilities.
- Water features and fountains.
- Hydrotherapy pools etc.

The assessed water system should have a potential legionella growth risk if mismanaged, and the report should fully consider the implications of what would happen if there was a Legionellosis outbreak.

The report must be as detailed as possible, covering how the water system was inspected, analytical results from measurements taken, and recommendations after the assessment. A report that only consists of typed-up field notes (e.g. a field log or sampling list) would not be accepted, as it would not go into sufficient detail about how the water system was evaluated or how the study was carried out.

The length of the report should be a minimum of four typed A4 pages. There is no restriction on the maximum length of the report.

More detailed advice of how to submit reports is provided in the Candidate Support Pack.

Marking and results

Candidates must submit their report to BOHS within twelve months of the date they sit the Written Theory examination (the examination is normally the same date as the training course). Candidates who do not submit their report within this timeframe will need to re-sit the Written Theory examination.

Candidates also must complete the Certificate of Authorship section of the Report Marking Form, and submit it to BOHS with the report. This can be downloaded from the BOHS website.

Candidates will receive their result in writing from BOHS. The result is given as a pass or fail. If a report has not passed, feedback is sent to the candidate with further information on the Report Marking Form (such as amend and re-submit report, provide new report, etc.) Reports may only be re-submitted twice; after this time, a new report must be submitted with an additional fee of £35.

Certification

Candidates who pass the qualification are awarded the Proficiency certificate in *P904 - Legionella – Management and Control in Leisure, Display, Therapy and other Non-Industrial Water Systems*.

Section 9

Quality assurance

Internal quality assurance

Training providers must operate an internal quality assurance system which evaluates and improves the delivery of the qualification.

External quality assurance

BOHS undertakes desk-based reviews of documents, including teaching materials, and conducts surveys of candidates. We also may inspect training providers.

Section 10

Offering the qualification

Approved training providers

Please complete and return the 'Application to Offer Additional Qualifications' form to qualifications@bohs.org. The form is available on the BOHS website.

New training providers

Please send an email to qualifications@bohs.org expressing your interest in offering the P904 qualification and we will advise you about the approvals process.

Section 11

Other courses and qualifications

Candidates who successfully complete this qualification may wish to take:

[P903 - Legionella – Management and Control of Evaporative Cooling and other High Risk Industrial Water Systems](#)

Objective

The qualification provides candidates with an understanding of the risks of legionella infection, and how to control legionella in evaporative cooling systems (e.g. cooling towers) and other high-risk Industrial water systems.

Target audience

This qualification is aimed at workers whose primary role is to manage the legionella proliferation risk in evaporative cooling systems and other industrial water systems. This includes:

- The 'responsible person' for managing a building premises (e.g. duty holders).
- Legionella consultants.
- Water systems operatives and technicians.
- Health and safety practitioners.
- Occupational hygienists.

For a full list of our courses and qualifications, please visit www.bohs.org/qualifications-training/bohs-qualifications .

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Information in this Qualification Specification is correct at the time of issue but may be subject to change.

BOHS
5/6 Melbourne Business Court
Millennium Way
Pride Park
Derby
DE24 8LZ

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