

# Rapid Microbiology & the PHE/HSE/ WMSoc working group

**Elise Maynard  
Immediate Past Chair,  
Water Management Society**



# Rapid Microbiology Liaison Group

- Water Management Society
- Legionella Control Association
- Public Health England
- Health & Safety Executive



# Rapid Microbiology Liaison Group

- Members of the working group
- Background of the working group
- Aims and objectives
- Summary



# Members

	Job Title/Location	Role & Responsibility:
<b>Jimmy Walker</b>	Scientific Lead for Water Microbiology and Decontamination, MS Biosafety Porton Down	Chair
<b>Elise Maynard</b>	Immediate Past-Chair, Water Management Society	Secretary
<b>Samuel Collins</b>	Legionella Research Scientist, MS Biosafety Porton Down	Member
<b>K. Clive Thompson</b>	Chief Scientist, ALcontrol Laboratories	Member
<b>Howard Barnes</b>	LCA Vice-Chairman & Global Tech Director Hygiene, Nalco WPS	Member
<b>John Newbold</b>	Independent Consultant	Member
<b>Lorraine Medcalf</b>	Senior Policy Advisor, COSH & Chemical Carcinogens Unit, HSE	Member
<b>Vin Poran</b>	HM Specialist Inspector, Microbiology & Biotechnology Unit, HSE	Member





# Background

- HSE requirement for “evidence-based” review
- Consumer demand
- Strengths and weaknesses of techniques
- Effects of live/dead, VBNC, biofilms and amoebae



# Background

Form an independent liaison group to review:

- What technologies and rapid assays are currently available
- How to understand and interpret what rapid assays to use, results and associated public health risks
- What are the pro's and con's of newer technologies including the “gold standard” culture

# Background

LEAP Proficiency Scheme - *Legionella* spp. culture

- Wide variation on *Legionella* proficiency results e.g.
- Range <100 to 34,000 CFU/L
- Range <1 to 187,000 CFU/L
- Range ND to 800,000 CFU/L



# Legionella PCR Proficiency Scheme Data

## QWAS - Quality in Water Analysis PT Scheme Legionella pneumophila by PCR Oct 2014

Lab ID	Method	Result (genomic units/L)	z' score*
WT0106	PCR	538,000	0.51
WT5425	PCR	67,500	-1.07
<b>WT5960</b>	<b>PCR</b>	<b>0</b>	
WT7001	PCR	375,000	0.23
WT7286	PCR	202,000	-0.23
WT7744	PCR	11,000	-2.44
WT8275	PCR	9,600	-2.54
WT9061	PCR	606,000	0.60
WT9079	PCR	880,000	0.88
<b>WT9168</b>	<b>PCR</b>	<b>0</b>	
WT9218	PCR	3	-8.66

## Performance Statistics

	Value
Assigned Value	275,227 genomic units/L
Satisfactory Range	19,659 to 3,853,141 genomic units/L
Satisfactory z' scores	66.7%
Questionable z' scores	22.2%
Unsatisfactory z' scores	11.1%



# Background

New technologies:

- PCR
- MALDI-ToF
- Defined substrate
- IMS
- ATP



# Aims and Objectives

- Increase awareness of the science behind new technologies
- Review high quality validation and peer reviewed evidence
- Create documents to assist interpretation & use

# Achievements

2015:

- Publication of independent reviews of a variety of technologies via Waterline
- Conference to understand industry concerns

2016:

- Creation & review of detailed questionnaires
- Creation of templates & matrix
- Further conference to address questions arising



# Conference

Web:  
[www.wmsoc.org.uk/conferences.php](http://www.wmsoc.org.uk/conferences.php)

Tel:  
01827 289558

Email:  
[events@wmsoc.org.uk](mailto:events@wmsoc.org.uk)



**WMSOC**  
THE WATER MANAGEMENT SOCIETY

## Rapid Rise of New Microbiological Techniques

### Your Questions Answered

WATER MANAGEMENT SOCIETY ONE DAY EVENT  
Thursday 24<sup>th</sup> November 2016  
ROYAL COLLEGE OF SURGEONS, LONDON WC2A 3PE

This one-day programme intends to provide clarity to the end-user regarding the How's, Why's and When's to requesting and understanding new techniques which are now commercially available.

#### PROGRAMME

**09:30 – 10:00 Registration and Refreshments**

**10:00 – 10:15 Introduction to Day & Welcome to Chairmen**  
Colin Shekleton, Chairman WMSoc

**10:15 – 10:45 "The Sampling Pantomime - Cinderella & the Glass Slip-Up's"**  
Howard Barnes, Nalco/LCA  
*How, why & when to sample? What sample size is needed? What guidance should be followed?*

**10:45 – 11:15 "The Good, The Bad and the Ugly"**  
Dr Jennifer Newton, Express Microbiology  
*What does UKAS accreditation actually mean? Why do different labs give different results? What tests are available? What sample size is acceptable?*

**11:15 – 11:45 Coffee break**

**11:45 – 12:15 "Fit for Purpose - Oh yes it is / Oh no it isn't!"**  
Elise Maynard, Immediate Past-Chair, WMSoc  
*Important new changes in ISO Legionella testing standards. How to choose the right rapid test for your sample & what to ask for.*

**12:15 – 12:45 "Catching the Villain"**  
Vin Poran, HSE  
*What does the inspector look for? What are evidence based technologies? What involvement does the regulator have? Will these technologies be included in future guidance and if so, when?*

**12:45 – 13:00 Panel Q&A Session for morning speakers**

**13:00 – 14:00 Lunch**

**THE DAWN OF A NEW ERA - CASE STUDIES**

**14:00 – 14:45 "Rapid Technologies - Research Results"**  
Dr Ginny Moore, Public Health England  
*Utilisation of techniques for outbreak management, novel applications & using the right assay at the right time.*

**14:45 – 15:30 "Rapid microbiological analysis for water management plan - a part of Legionella risk assessment for drinking water"**  
Professor Philippe Hartemann, Université de Lorraine, Director of the Luxembourg National Health Laboratory  
*Assessment of risk, Identification of critical control points, System survey, How to use the data effectively.*

**15:30 – 16:00 Panel Q&A for all speakers**

**16:00 Refreshments & Access to Royal College of Surgeons' Museum**

The WMSoc reserves the right to alter speakers and/or titles of papers if circumstances dictate.

**T: 01827 289558 E: [events@wmsoc.org.uk](mailto:events@wmsoc.org.uk)  
[www.wmsoc.org.uk/conferences.php](http://www.wmsoc.org.uk/conferences.php)**

5 CPD points awarded

**Legionella**  
**PCR**  
**IMS**  
**ATP**  
**Defined Substrate**  
**MALDI ToF**  
**TRADE STANDS AVAILABLE**

**SCI**  
**SOCIETY OF CHEMISTRY**  
**WATER SCIENCE FORUM**  
**WMSOC**  
THE WATER MANAGEMENT SOCIETY



# Conference

## NEW TOPICS ADDED:

How the latest ISO 11731 Legionella testing standard revisions will impact the Gold Standard.

How to understand current developments in water testing.

Matrices to decipher rapid methodologies.

What will the HSE expect from industry in future?

Case studies – practical use of rapid tests to assist in outbreak and water safety management.

# Conference

## “The Sampling Pantomime - Cinderella & the Glass Slip-Up’s”

Howard Barnes, Nalco/LCA

How, why & when to sample? What sample size is needed?  
What guidance should be followed?

Industry are questioning the differences in *Legionella* and *Pseudomonas* testing requirements, this requires clarification/change.

## “The Good, The Bad and the Ugly”

Dr Jennifer Newton, Express Microbiology

What does UKAS accreditation actually mean? Why do different labs give different results? What tests are available? What sample size is acceptable?

The rapid micro group have consulted with UKAS to help deliver industry concerns and feedback.

# Conference

## “Fit for Purpose - Oh yes it is / Oh no it isn’t!”

Elise Maynard, Immediate Past-Chair, WMSoc

Important new changes in ISO Legionella testing standards.

How to choose the right rapid test for your sample & what to ask for.

The working group are developing tools to help compare technologies and preparation methodologies.

## “Catching the Villain“

Vin Poran, HSE

What does the inspector look for? What are evidence based technologies?

What involvement does the regulator have?

Will these technologies be included in future guidance and if so, when?

Industry wants to know what data the HSE will accept, especially in scenarios where guidance is vague.

# ISO 11731

## Water quality – Enumeration of Legionella

- UK negative vote
- New standard difficult to follow
- 8 different testing procedures
- Selection on water type and bacterial count
- Ultimately will lead to lack of consistency in testing



# Case Studies

## “Rapid Technologies - Research Results“

Dr Ginny Moore, Public Health England

Utilisation of techniques for outbreak management,  
novel applications & using the right assay at the right time.

## “Rapid microbiological analysis for water management plan - a part of *Legionella* risk assessment for drinking water“

Professor Philippe Hartemann, *Université de Lorraine, Director of the  
Luxembourg National Health Laboratory*

Assessment of risk, Identification of critical control points,  
System survey, How to use the data effectively.

# Summary

- To create an independent and objective forum to assist in the interpretation and understanding of rapid technologies
- To liaise and work with relevant stakeholders
- To review national and international perspectives
- To review technologies, based on peer-reviewed scientific evidence
- Produce a good practice guidance documentation