



Legionellosis Risk Management Status Audit

**for Cotswold District Council and West
Oxfordshire District Council Legal
And Property Services
September 2014**



Date : September 2014
Next Audit Due: September 2015
Issued To : Ivan Hackett and Tim Seeton
Author : Alan Hambidge

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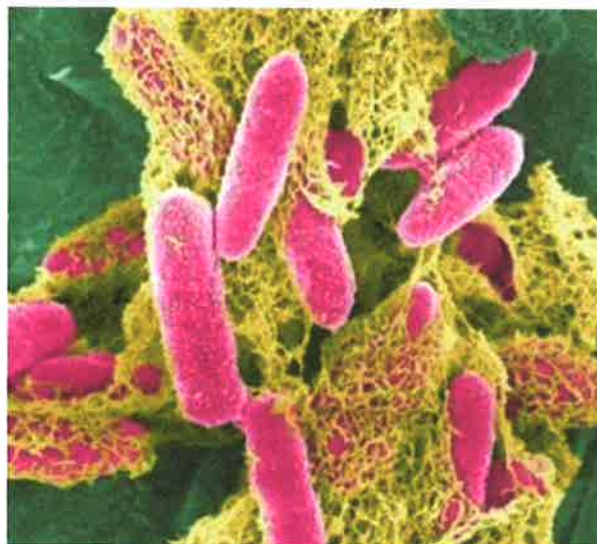
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Legionellosis Risk Management Audit

Section A



1 LEGIONELLOSIS MANAGEMENT AUDIT SUMMARY / RECOMMENDATIONS

The audit of the Legionellosis risk management approach of the recently combined Legal and Property Services Department for Cotswold District Council and West Oxfordshire District Council was completed in September 2014 by Alan Hambidge, a LCA accredited, Chartered Safety and Health Practitioner and Managing Director of Empathy Environmental Consultants Ltd. The responses provided are based on answers given by members of staff and the review of records, reports policy and other data that was presented during the audit exercise, and thus can only be based on the data provided.

The audit involved on-site interview and records review, and a formal audit questionnaire was completed.

Good progress appears to have been made. Mr Ivan Hackett and Mr Tim Seeton had kindly collated the records. NCRs were identified and actions indicated – but there are fewer and risk has reduced - there continues to be good improvement here, but the rate has reduced due to the on-going merger of the Legal and Property Services Function of WODC and CDC to provide a joint service.

There is an opportunity to put all hard data into a spreadsheet and chart progress in temperature compliance, PPM delivery, bacterial results etc – this is a strong recommendation. There is a need to complete the standardisation of documents across the service, including policy, procedures, log-books and appointments.

There has been an improvement since the last audit, as illustrated below. In addition the direct responsibility of the Council has diminished as Leisure etc sites are now managed by an out-sourced contract for CDC now.

The principle observations and remaining recommendations from the audit were:

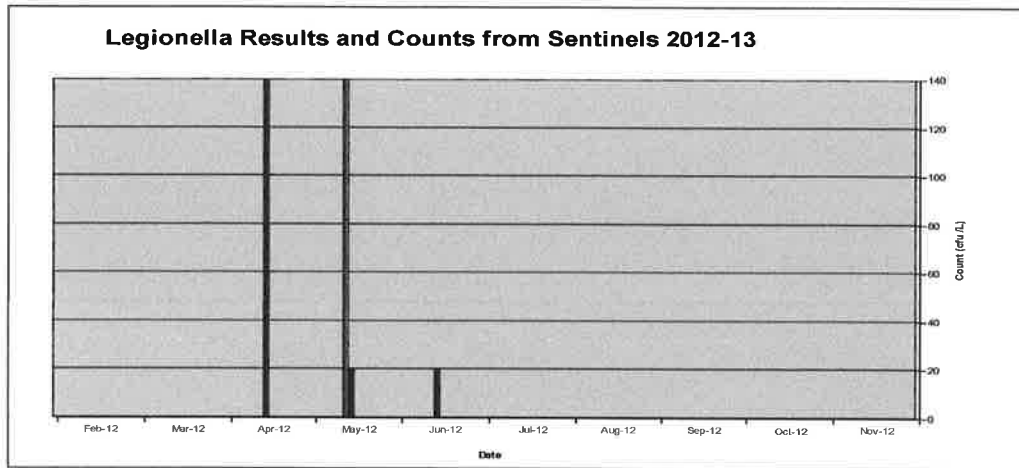
- 1) The legionellosis risk assessments are now complete and will be assessed on an annual basis (see also the audit of the sites with out-sourced management, as these recommendations are not covered here);
- 2) Legionellosis policy and procedures are now in place, but will need review when the final structure of the joint service for WODC and CDC is confirmed;
- 3) The legionellosis training for Responsible Persons and Deputies is now complete and up-to-date;

- 4) Generally the monitoring regimes at the sites appear to be appropriate and in accordance with L8, and records are present. Ensure these are continued and records have a clear audit trail;
- 5) Shower heads are cleaned and de-scaled on a quarterly basis – maintain this approach;
- 6) Water system log books exist at both WODC and CDC, as do pool monitoring and bacteriological / monitoring records (see other report). Ensure that a pool operational procedures are developed and employed. However, these are a different format to at CDC and WODC. Alan Hambidge of Empathy EC Ltd provided a model log-book format developed at Eastwood Park. This is being reviewed but is too comprehensive for the Council and the simplified model used at WODC provides a good start point template for the joint approach – complete the review and examine the system at WODC. Consider using Paul Webb as at WODC to complete the log book tasks and scalding audit (see later).
- 7) Formal completion of the appointment for the Responsible Person and Deputies and revision of the organogram for the combined service are to be completed. However, staff are trained and competent and working in these roles currently;
- 8) A Legionellosis Management Group with a meeting agenda to reflect a proactive management system is now in place;
- 9) An independent Advisor (Alan Hambidge of Empathy EC Ltd) is appointed;
- 10) Formal meeting minutes are present;
- 11) Formal training records are up-to-date;
- 12) An audit of managed sites (e.g. leisure) has now been completed by Empathy EC Ltd – see separate report;
- 13) Contact all contractors to ensure that all plumbers and materials are WRAS approved. Log books are maintained by Watercare Specialists Ltd at CDC and Safe Contractor certificates and training records were seen. Log books are maintained in-house by Paul Webb at WODC;
- 14) The legionellosis policy procedures and contingency procedures are being revised and developed so that they are consistent for the new joint service provision.
- 15) Ensure that the correct operating temperatures are employed (some POU water heaters at CDC were set a bit low temperature – ensure comply with the new L8 and HSG 274);

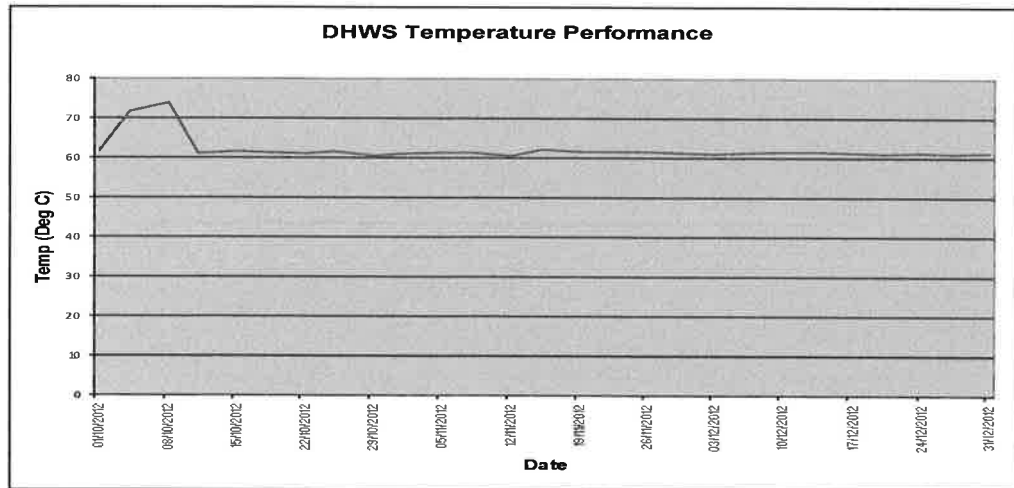
16) With many sites being out-sourced now, there is a need for sound assurance reports from these sites to the team – It is strongly recommended that all hard data is also entered into a spreadsheet so that it is possible to chart progress in temperature compliance, PPM delivery, bacterial results etc – this should be set up and assurance reports generated.

Example reports are below, and a sample assurance report template over-page.

Sample report assurance graphs:



Sample report assurance graphs:



Draft Sample Water / Legionella Management Assurance Report

Cotswold District Council	Signed:
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Complete in electronic format and submit with monthly report prior to the Legionella Management Group meeting for discussion.

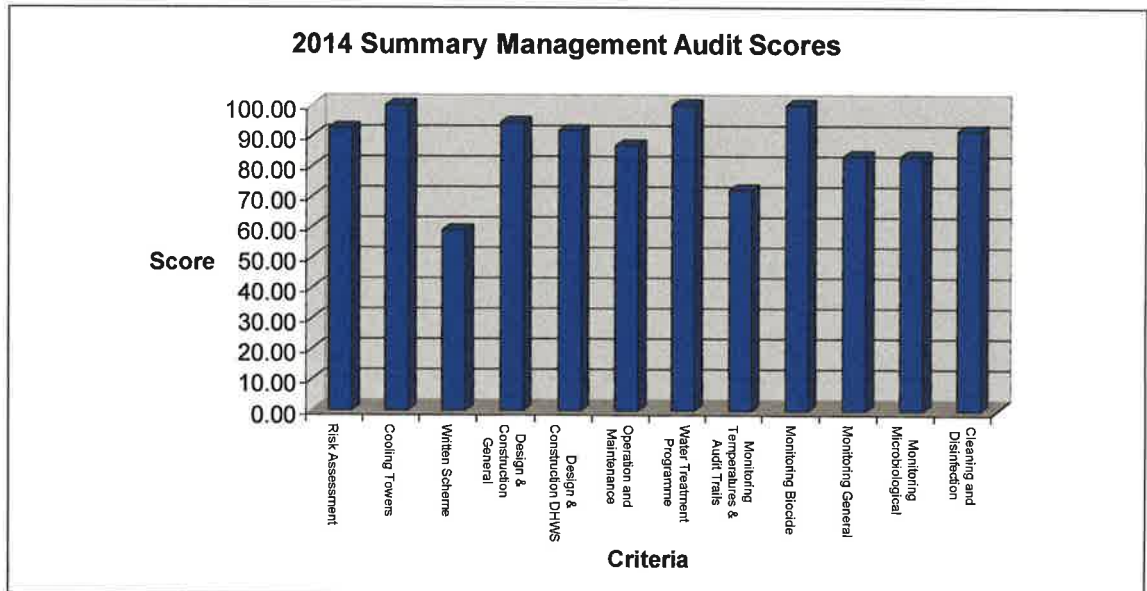
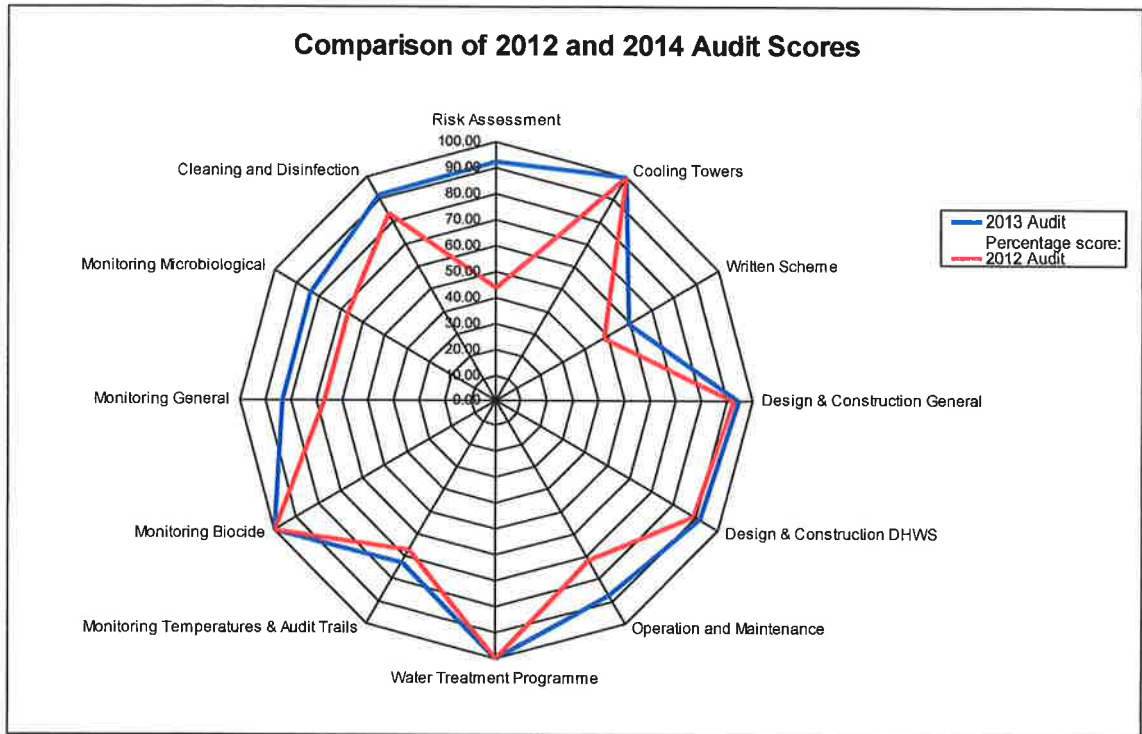
Area:	Task:	Frequency:	% Non Compliant	Task Completed this Month (Yes/No):	Any Actions Needed:	All Compliant Now:
NCR Correction	Bacterial NCR raised	As required				
	Temperature NCR raised	As required				
Problem notifications	Interim problem notification report.	As required				
Dead leg / Schematics Issue	Dead leg, blind-end or other problems identified. Note if actioned.	As required				
System Alteration	Plant / system alterations and modifications notification. Confirm all WRc / WRAS approved.	As required				
Cold Water Storage	Required capacity determination	Annual				
	Temperature monitoring	6 monthly				
	General inspection	6 monthly				
	Biological monitoring	As per procedures				
	Clean and disinfect	Annual as required				
DHWS / Calorifiers	Temperature monitoring (Flow / Return / Cold Feed / Stratification)	Monthly & BMS				
	General visual inspection and drain sludge	12 monthly				
	Biological monitoring	As per procedures				
	Pasteurisation / disinfection	As required				
Point of Use Water Heaters	Temperature monitoring	6 monthly				
	General inspection	6 monthly				
HWS and CWS distribution system	Temperature monitoring (sentinel etc)	Monthly				
	Infrequently used outlet flushing.	weekly				
	Biological monitoring (including <i>Legionella sp.</i>)	As per procedures				
	Clean and disinfect	As required				
	PALL filters	As required				
Thermostatic Mixing Valves (TMVs)	Temperature monitoring	Quarterly				
	Clean disinfect / service	As required				
Shower Heads	Temperature monitoring	Monthly				
	General inspection	Quarterly				
	Biological monitoring (including <i>Legionella sp.</i>)	As required				
	Clean, disinfect & service	Quarterly				
	PALL filters	As required				
Air Conditioning / Air Handling Units	Inspection, cleaning and disinfection of glass AHU traps	Quarterly or as required				
	AHU drip tray & batteries clean and disinfection	12 monthly				
Risk Assessment	Audit	Annual				
	Full risk re-assessment	Annual review				
Water Hygiene Group	Group meet monthly and monitor progress against the strategic action plan.	Quarterly				
Other Issues	Specify other issues for this month:	As required				

17) Complete a scalding audit;

18) Develop suitable and sufficient water service schematics;

Comparison of 2012 and 2014 audit scores

The radar diagram below shows that progress has been made across most sectors of legionellosis control from the 2012 audit to the 2014 audit.



2 AUDIT METHOD

The audit of the Legionellosis risk management approach of the Cotswold District Council was based on the requirements of numerous key legionellosis / water hygiene management legislation, most notably:

- COSHH Regulations;
- L8;
- HSG 274;
- BS8580.

Reference is also made to the Management of Health and Safety at Work Regulations (MHSWR) in determining if an item is “Suitable and Sufficient” for its purpose.

Two formal questionnaires have been applied. The first is based on the HSE model audit, and is appended. The second is a management of legionellosis audit form covering 46 key criteria under five main headings, thus:

1. Appointments & Responsibilities;
2. Risk Assessment and Survey;
3. Risk Management System;
4. Management and Implementation;
5. Records.

Answers were gathered by interview, record review and review of previous plant room site audit data. Responses were on a strict compliance basis (“Yes” or “No”).

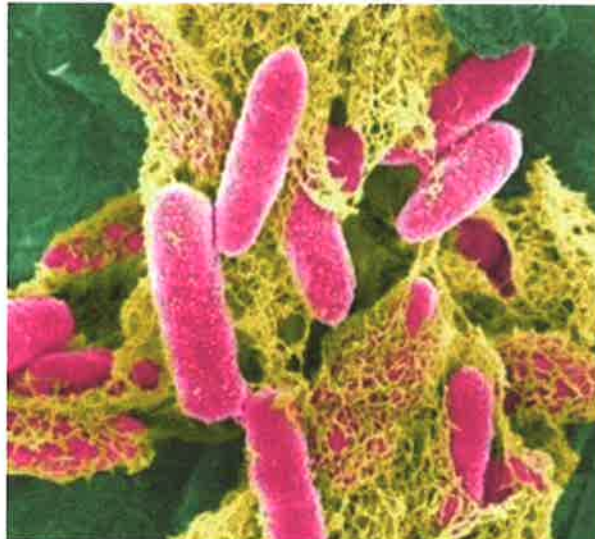
3 DIRECT COUNCIL MANAGED AUDIT ACTION PLAN -

The following table provides a summary of the principle recommendations:

No:	Recommendation:	Priority:	Deadline:	Achieved: (Yes / No)
1	Update risk assessments on an annual basis and ensure that a clear action plan is produced. L8 requires that risk assessments should be completed every two years;	1	Nov 2014	YES & Updated 2014
2	Develop legionellosis procedures – drafted. Complete review and revision in light of new joint system with CDC and WODC;	1	April 2015	YES. Being reviewed currently
3	Complete legionellosis training for Responsible Persons and Deputies;	1	Nov 2015	YES & Updated 2013 & 2014
4	Generally the monitoring regimes at the sites appear to be appropriate and in accordance with L8, and records are present. Continue and develop audit trail and develop consistent log-book (WODC model – TBC).	2	Jan 2015	On-going
5	Water system log books exist, as do pool monitoring and bacteriological / monitoring records. Develop new standard log-book based on template provided for the joint sites (WODC template – TBC). Update where out of date.	1/2	April 2015	
6	Responsible and Deputy Responsible Persons Appointments in place. Review and formalise details following amalgamation of WODC and CDC;	1/2	April 2015	Started
7	Develop an "Organogram" for the Council's Legionellosis Management function;	1/2	April 2015	Started
8	Continue to develop the Legionellosis Management Group with a meeting agenda to reflect a proactive management system;	On-going	On-going	On-going
9	Retain a specialist to advise and guide;	On-going	On-going	On-going
10	Complete an audit of managed sites;	1/2	Nov 2014	Completed Sept 2015
11	Contact all contractors to ensure that all plumbers and materials are WRAS approved;	2	Nov 2014	
12	Develop the legionellosis policy, procedures & contingency procedures and ensure all monitoring is in place, and that there is a sound audit trail;	1/2	April 2015	YES – continue to develop and implement a standard joint policy and procedures.
13	Subject the entire system to annual audit (of this type). Next due February 2011.	2/3	Nov 2014	YES updated Sept 14
14	Develop water service schematics for CDC.	1/2	April 2015	
15	Complete a scalding audit for CDC and update for WODC.	1/2	Feb 2015	

Legionellosis Risk Management Audit

Section B



Control of Legionella Bacteria in Water Systems: Audit of Management



Organisation audited	Legal and Property Services Department of Cotswold District Council and West Oxfordshire District Council
Name of auditor	Alan Hambidge
Date of audit	September 2014
Auditees	CDC = Ivan Hackett, Andy Dike, WODC = Tim Seeton, Diane Verran, Paul Webb
Date review due	September 2015

Checklist 1 – The Risk Assessment		2014 Status Update:			
		Yes	No	Actions / Comments	Score
1	Did you consider whether you could eliminate the risk? [eg replacement of wet cooling systems]	Yes		Risk assessments are now in place.	3
2	Did the person carrying out the assessment have access to competent help and advice when carrying out the assessment?	Yes		Completed by an independent LCA accredited OSHCR specialist consultant.	3
3	If there are more than five employees in your organisation, did you record the significant findings of the assessment?	Yes		Completed by an independent LCA accredited OSHCR specialist consultant.	3
4	Did you consult employees about the assessment and the control measures?	Yes		An audit with interviews was completed prior to the assessment.	3
5	Have you identified the circumstances which would require a review of the assessment? [eg at least every two years and whenever it is suspected of being no longer valid, eg if there is a significant change to the system]	Yes		Policy is for an annual audit and annual review of the risk assessments. Continue this approach.	3
Managing the risks: Roles and responsibilities					
6	Has a 'responsible person' been appointed in writing?	Yes Partial		The Head of Legal and Property Services (Bhavna Patel) has been identified as the Responsible Person, with Mr Andy Dike as the Deputy for Technical. Mr Ivan Hackett and Mr Tim Seeton are the Competent Deputy (Technical). A draft "organogram" has now been developed. Confirm and update documents for the joint service with WODC.	2.75
7	Is there a nominated deputy?	Yes Partial		The Head of Legal and Property Services (Bhavna Patel) has been identified as the Responsible Person, with Mr Andy Dike as the Deputy for Technical. Mr Ivan Hackett and Mr Tim Seeton are the Competent Deputy (Technical). A draft "organogram" has now been developed. Confirm and update documents for the joint service with WODC.	2.75
8	Are contact details of these people readily available [in the event of an emergency]?	Yes			3
9	Are the roles and responsibilities of all staff involved in the control regime clearly defined in writing?	Yes		Policy and procedures now in place with separate organogram. Complete development.	2.5
10	Have they all received appropriate training?	Yes		Update CP and RP training was provided during 2013 and 2014 based on abridged versions of the City and Guilds Courses. The courses were provided by Alan Hambidge a City and Guilds and CIEH Tutor and certificates of attendance exist.	3

11	If external contractors are used, are their roles and responsibilities clearly defined in writing?	Yes		The independent Advisor roles are clearly laid out in the contract proposals prepared by Empathy EC Ltd. The existing water log-books appear to be reasonably sound and identify the tasks that are completed by the external water contractor "Watercare Specialists Ltd". Ensure that all results continue to be properly monitored by the Deputy Responsible person and any non conformances are checked and acted upon. Ensure that there is a clear and robust audit trail with evidence of all actions taken.	2.75
12	Have you checked the competence of contractors?	Apparently Yes		Certificates provided by Ivan Hackett to Empathy EC Ltd were acceptable. Empathy EC Ltd statement of qualifications and references etc were provided at the rear of their proposal.	3
13	Have you considered all other health and safety issues [eg COSHH assessments for handling of water treatment chemicals, working at height, working in confined spaces, electrical safety and ease of access to side of the system?]	Apparently Yes		Ivan Hackett stated yes. Ensure that all COSHH assessments are in place, data sheets available and any required PPE / RPE provided.	3
14	Legionellosis database or spreadsheet developed?	Yes		Is an action plan in the reports and a spreadsheet of actions.	2.75
15	Legionellosis contingency procedures in place?	Partial Yes		Complete the development.	2.5
16	Clear written legionellosis policy document?	Partial Yes		Complete the development.	2.5
17	Have staff been trained?	Yes		Update CP and RP training was provided during 2013 based on abridged versions of the City and Guilds Courses. The courses were provided by Alan Hambidge a City and Guilds and CIEH Tutor and certificates of attendance exist.	3
18	Legionellosis management group established?	Yes		The first formal meeting of the new group was 10th July 2012. Alan Hambidge, MD of Empathy EC Ltd chairs the meetings. Minutes are prepared.	3
19	Water Regulations Training?		No	Examine if appropriate with local Water Authority.	1
Average score =					2.76

Checklist 2 – Cooling Towers

NA – There are No such systems here.

Average score = **3**

Checklist 3 – Hot and Cold Water Services

Type of system[s] [tick]	
TBC	Gravity without recirculation
TBC	Gravity with recirculation
TBC	Pressurised
Numerous MCW & POU Heaters	Other [describe below]
See Plant schedule and risk assessment for details	

Written Scheme	Yes	No	Actions / Comments	Score
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1	Is there a written scheme for controlling the risk from exposure to Legionella bacteria?	Y			The risk assessments have been updated now. There are now draft policy and procedures. The Log Book from Watercare Specialists Ltd appears to be reasonably sound and audit trail has improved. Although there were still the odd gap and error - e.g. the Moreton Area Office Log Book says that the site is a Hotel called the Angel Hotel. AThe Deputy RP must continue to review log-books as fit for purpose, and get trend / performance data for the sites. However, initial review looks promising. There are now current adequate risk assessments and procedures - these should be implemented. The schematics are to be developed.	2.75
2	Does the scheme contain an up-to-date plan of the system (a schematic is ok)?			Partial / No	The status of schematics is to be confirmed. There are apparently some known schematics for some sites, but the status is not clear for several other sites. Ivan Hackett to confirm status. Additional schematics to be developed within the next 12 months. This has been left out of the urgent legionellosis risk assessment exercise, until the scope is confirmed.	1.25
3	Does the plan show and identify:					
	* all system plant, eg water softeners, filters, strainers, pumps, non-return valves and all outlets, for example showers, wash-hand basins etc?			Partial / No	As above	1.25
	* all standby equipment, eg spare pumps?			Partial / No	As above	1.25
	* all associated pipework and piping routes?			Partial / No	As above	1.25
	* all associated storage and header tanks?			Partial / No	As above	1.25
	* the origin of water supply?			Partial / No	As above	1.25
	* any parts that may be out of use temporarily?			Partial / No	As above	1.25
4	Does the scheme contain instructions for the operation of the system [see Q18-23]?		Partial Yes		Details are in log-book. Elaborate in the legionellosis procedures.	2.5
5	Does the scheme contain details of the precautions to be taken to control the risk of exposure to Legionella bacteria [see Q24-26]?		Partial Yes		Details are in log-book. Elaborate in the legionellosis procedures.	2.5
6	Does the scheme contain details of the checks that are to be carried out [and their frequency] to ensure that the scheme is effective [see Q27-40]?	Yes			Details are in log-book. Elaborate in the legionellosis procedures.	3

Average Score = **1.77**

Design and Construction		Yes	No	Actions / Comments	Score
7	If you are fitting a new system, do any of the materials or fittings used in the water systems support the growth of micro-organisms?	Apparently Yes		Ensure so	3
8	Are low corrosion materials used?	Apparently Yes		Ensure so	3
9	If fitted, are thermostatic mixing valves [TMVs] sited as close as possible to the point of use?	Apparently Yes		Ensure so	3
Design and construction: Cold water system					
10	Are low use outlets installed upstream of higher use outlets?	Apparently Yes		Ensure so - TBC	2
11	Has cold water storage been assessed and minimised, ie holds enough for a day's use only?	Believed Yes		The majority of sites and systems are mains fed cold water.	3
12	Is piping insulated and kept away from heat sources [where possible]?	TBC		By design yes stated IH. TBC.	2.75
13	Is the cold water tank:				
	* fitted with a cover and insect screen[s] on any pipework open to the atmosphere?	Apparently Yes		Apparently Yes. Confirm during risk re-assessment.	3
	* located in a cool place and protected from extremes of temperature?	Apparently Yes		Apparently Yes. Confirm during risk re-assessment.	3

	* accessible?	Apparently Yes	Apparently Yes. Confirm during risk re-assessment.	3
Average score =				2.86

Design and Construction - DHWS		Yes	No	Actions / Comments	Score
14	Does the calorifier storage capacity meet normal daily fluctuations in hot water use while maintaining a supply temperature of at least 50°C?	Apparently Yes		Only limited DHW storage	3
15	Are the hot water distribution pipes insulated?	Apparently Yes		Confirmed Ivan Hackett. Ensure so.	2.5
16	If more than one calorifier is used, are they connected in parallel?	Apparently Yes		Confirmed Ivan Hackett. Ensure so.	3
17	Does the calorifier have the following fitted:				
	* a drain valve?	Apparently Yes		Confirmed Ivan Hackett. Ensure so.	3
	* a temperature gauge on the inlet and outlet?	Apparently Yes		Confirmed Ivan Hackett. Ensure so. No storage at council direct managed sites - only POU.	2.75
	* an access panel? (plate heat exchanger = NA)	Apparently Yes		Confirmed Ivan Hackett. Ensure so.	3
Average score =				2.68	

Operation & Maintenance		Yes	No	Actions / Comments	Score
18	If the water supplied to your building is not mains supply, has the water been pre-treated to make sure it is of the same quality as the mains?	NA		All Mains cold water supply.	3
19	Is the entire contents of the calorifier, including the base, heated to 50°C for an hour each day, eg by using a shunt pump?	Apparently Yes		Apparently yes - ensure so where relevant - see risk assessment reports.	2.5
20	Are all outlets that are no longer required cut back as far as the main pipe run?	Apparently Yes		Ensure so. Check for dead-legs during schematic preparation (excluded from legionellosis risk re-assessment proposal).	2.5
21	Are there arrangements to incorporate standby equipment, eg calorifiers, pumps, into routine use?	Apparently Yes		Ensure so	2.5
22	If little used outlets have not been removed, are there arrangements in place to either:				
	* flush them through on at least a weekly basis (with records kept of this)? Or	Yes		Is a weekly flushing regime.	3
	* carry out a safe purge of stagnant water (ie minimisation of aerosols eg by piping directly to drain) before use?	Apparently Yes		TBC - ensure so where required. Largely NA.	2.5
23	If thermostatic mixing valves are fitted, are they included in the maintenance schedule?	Yes		Ensure so.	2.75
Average score =				2.66	

Water Treatment Programme		Yes	No	Actions / Comments	Score
24	Is there a water treatment programme in place?	NA / Yes		No Water Treatment on domestic water - only on pools where apparently OK	3
25	Is temperature used as a control method [got to Q27/7?	NA / Yes		No Water Treatment on domestic water - only on pools where apparently OK	3
26	Are biocides used as a control method? Give the method below [go to Q33].	NA / Yes		No Water Treatment on domestic water - only on pools where apparently OK	3
Average score =				3.00	

Monitoring - Temperatures		Yes	No	Actions / Comments	Score
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27	if there is a risk of scalding (eg where the young, elderly or disabled may use the outlets), are thermostatic mixing valves fitted? There is no Safe HW Risk Assessment – complete an audit		Partial	There has been no safe hot water audit - complete a safe hot water audit. Empathy EC Ltd can supply an audit form.	1
28	is the temperature of sentinel hot and cold water outlets checked on a monthly basis?	Yes			3
29	if fitted, is the temperature of the water supply to thermostatic mixing valves checked on a monthly basis?	TBC out-sourced	NA	NA for retained stock. Are checked at pools. These are out-sourced now. Obtain test protocol and assurance of testing and compliance	2
30	is the temperature of the water in the outlet of and return pipes of the calorifier checked on a monthly basis?	TBC out-sourced		NA for retained stock. TBC for out-sourced sites. These are out-sourced now. Obtain test protocol and assurance of testing and compliance	2
31	is the temperature of the incoming cold water supply checked on a six-monthly basis?	TBC out-sourced		NA for retained stock. TBC for out-sourced sites. These are out-sourced now. Obtain test protocol and assurance of testing and compliance	2
32	is the temperature of a representative number of hot and cold water outlets checked on an annual basis?	Apparently Yes		Ensure so	3
Average score =					2.17

Monitoring - Biocide		Yes	No	Actions / Comments	Score
33	is the control level required known and recorded in the operations manual?	NA / Yes		No Biocide Treatment on domestic water - only on pools where apparently OK	3
34	is the rate of release/rate of addition of biocide known and recorded?	NA / Yes		No Biocide Treatment on domestic water - only on pools where apparently OK	3
35	is the concentration of the biocide at sentinel outlets checked on a monthly basis?	NA / Yes		No Biocide Treatment on domestic water - only on pools where apparently OK	3
36	is the concentration of biocide checked at representative outlets on an annual basis?	NA / Yes		No Biocide Treatment on domestic water - only on pools where apparently OK	3
Average score =					3

Monitoring - General		Yes	No	Actions / Comments	Score
37	On an annual basis is there:				
	* a visual check of the cold water tank and the water in it?	Apparently Yes		Ensure so and contained in the log-book.	2.5
	* a check to see if there is reasonable flow through the cold water tank ie good tangential flow across the tank?	Apparently Yes		Ensure so and contained in the log-book.	2.5
	* a drain of the calorifier and a check for debris?	Apparently Yes		Ensure so and contained in the log-book.	2.5
	* a check on the plans for the hot and cold water circuits to make sure they are up to date?	Apparently Yes		Ensure so and contained in the log-book.	2.5
	* a check on the existence of all water connections to outside services?	Apparently Yes		Ensure so and contained in the log-book.	2.5
38	Are results of all tests and checks recorded, together with details of any remedial action taken (if required)?	Apparently Yes		Ensure so and contained in the log-book.	2.5
Average score =					2.6

Monitoring - Microbiological		Yes	No	Actions / Comments	Score
39	Are there procedures in place to identify circumstances when either general microbiological monitoring or sampling for Legionella would be appropriate?	Yes		In log-book. Ensure that there is a simple escalation procedure is used and ensure that there is a clear audit trail to actions taken when there are any non conforming results.	2.5
40	if there are procedures in place, do these identify where samples should be taken, and the frequency and actions required?	Yes		In log-book. Ensure that there is a simple escalation procedure is used and ensure that there is a clear audit trail to actions taken when there are any non conforming results.	2.5
Average score =					2.6

Cleaning and Disinfection		Yes	No	Actions / Comments	Score
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41	Have the circumstances when cleaning and disinfection of the hot water system would be appropriate been identified?	Apparently Yes		Ensure so.	3
42	If cleaning and disinfection were to be carried out, which of the following methods would be used?				
	* thermal?	Apparently Yes			3
	* chemical?	Yes			3
43	Are procedures in place for the chosen method of cleaning and disinfection?	Partial Y		Incorporate in procedures.	2
Average score =					2.75

Note: Northumbria Water is due to complete an inspection against the Water Supply (Water Fittings) Regulations, 1999.

Key to Scores: Y = 3 points; Believed Y / TBC = 2 points; Partial Y = 1 point; N = 0 points

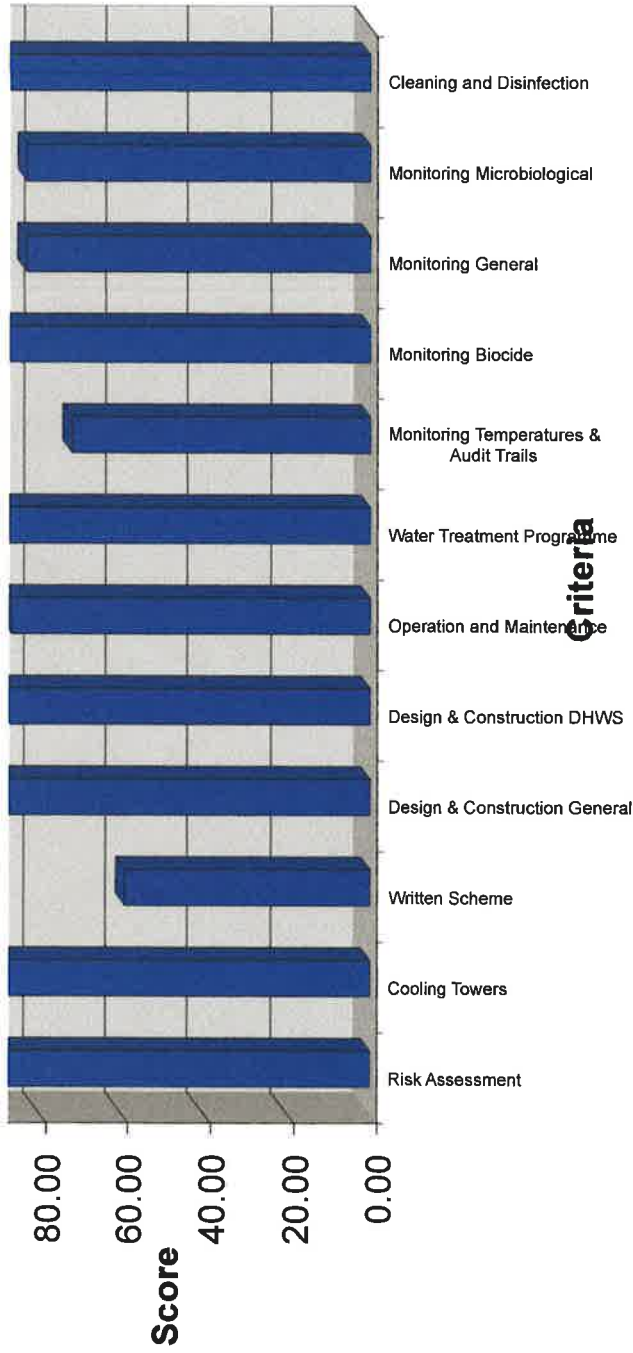
Summary

Criteria:	2014 Audit Percentage score:
Risk Assessment	92.11
Cooling Towers	100.00
Written Scheme	59.09
Design & Construction General	95.37
Design & Construction DHWS	95.83
Operation and Maintenance	89.29
Water Treatment Programme	100.00
Monitoring Temperatures & Audit Trails	72.22
Monitoring Biocide	100.00
Monitoring General	83.33
Monitoring Microbiological	83.33
Cleaning and Disinfection	91.67

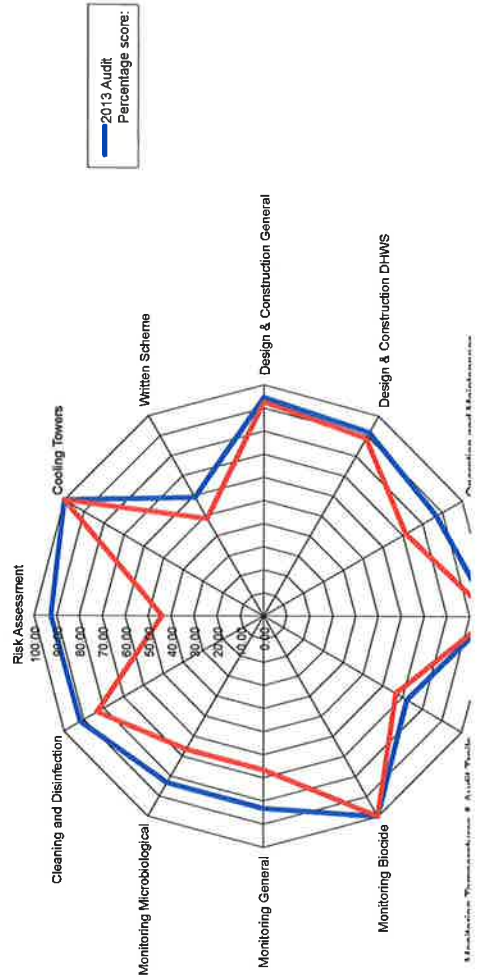
2012 Audit Percentage score:
43.86
100
48.48
92.59
88.89
71.43
100
66.67
100
66.67
66.67
83.33

2014 Summary Management Audit Scores





Comparison of 2012 and 2014 Audit Scores



measuring temperatures & water flows



Water Treatment Programme

operational and maintenance