


<b>OPERATIONAL MAINTENANCE PROCEDURE</b>			 <b>UNIVERSITY OF LINCOLN</b>
<b>Subject:</b>  CONTROL OF LEGIONELLA BACTERIA IN WATER SYSTEMS	E&CS15	Rev. 6	
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	Owner: Simon Crampton		

## 1.0 PURPOSE

The purpose of this document is to define the procedure for the control of Legionella Bacteria in the University's water systems.

## 2.0 GENERAL

The University Control procedure conforms to the Health and Safety at Work Act 1974 as well as the Approved Code of Practice 'L8 Control of Legionnaire's Disease'.

The procedure for control of Legionella bacteria in water systems within the University of Lincoln buildings and properties shall be in accordance with the Approved Code of Practice L8 Forth Edition (2013), HSG 274 Part 2 (2014) and HSG274 Part 3 (2013).

Legionellosis is the collective name given to the pneumonia-like illness caused by legionella bacteria. This includes the more serious legionnaires' disease, as well as the similar but less serious conditions of Pontiac fever and Lochgoilhead fever. Legionnaires' disease is a potentially fatal form of pneumonia and everyone is susceptible to infection. However, some people are at higher risk, including:-

- People over 45 years of age;
- Smokers and heavy drinkers;
- People suffering from chronic respiratory or kidney disease; and
- Anyone with an impaired immune system.


The bacterium *Legionella pneumophila* and related bacteria are common in natural water sources such as rivers, lakes and reservoirs, but usually in low numbers. Since legionella bacteria are widespread in the environment, they may contaminate and grow in purpose-built water systems such as cooling towers, evaporative condensers, hot and cold water systems and whirlpool spas.

The majority of the University of Lincoln properties have some form of hot and cold water systems, these are susceptible to bacteria, therefore deeming it necessary to have procedures in place to minimise the risk of Legionellosis.

## 3.0 PROCEDURE

The purpose of the risk assessment is to enable a valid decision to be made about:

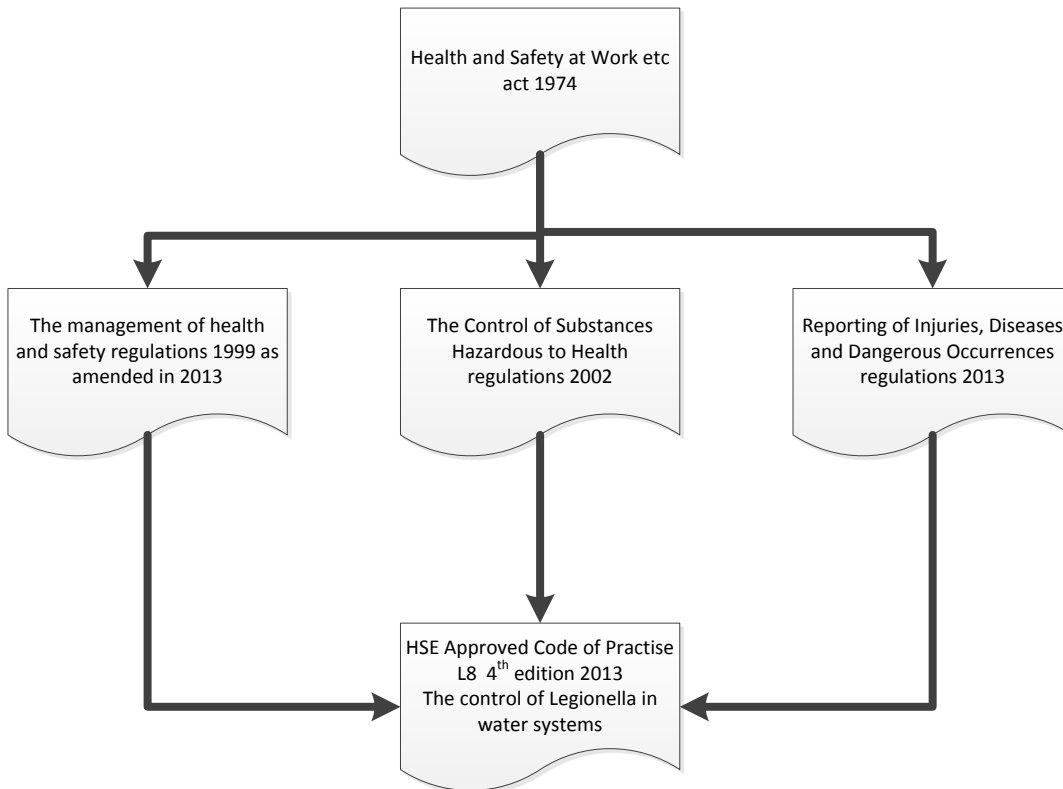
- a) The risk to health, i.e. whether the potential for harm to health from exposure is reasonably foreseeable unless adequate precautionary measures are taken.
- b) What measures for prevention, or adequate control to minimise the risk from exposure to Legionella, should be taken.


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3.1 Statute

Statute for the management, identification and assessment of risk of Legionellosis, in buildings owned by the University of Lincoln.

- a) Health and Safety at Work Act 1974.
- b) The Management of Health and Safety at Work Regulations 1999
- c) COSHH Regulations 2002.
- d) Reporting of Injuries, Diseases & Dangerous Occurrences Regulations 2013
- e) HSE Approved Code of Practice L8 (2013)
- f) HSG 274 Part 1 (2013)
- g) HSG 274 Part 2 (2014)
- h) HSG 274 Part 3 (2013)



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### 3.2 Managerial Responsibilities

#### **A. The Director of Estates and Commercial Facilities**


- Is the Duty Holder
- To appoint a responsible person and delegate total authority to allow compliance

#### **B. Senior Engineer Compliance. Currently Simon Crampton**

- To be the 'Responsible Person'.
- To ensure systems are designed and installed to ensure compliance with HSE Approved Code of Practice L8 (2013).
- To ensure all necessary documentation is completed and included in the University of Lincoln database.
- To have sufficient knowledge to ensure hot and cold water systems comply with HSE document L8 (2013).
- To have a clear understanding of the duties and responsibilities and the overall health and safety management structure and policy.
- All Responsible persons should hold a BOHS P901 qualification.

#### **C. M&E Maintenance Engineer. Currently Mark Skinner**

- To be the 'Deputy Responsible Person' and to act on behalf of the Responsible Person in their absence.
- To ensure a suitable and sufficient monitoring regime is adhered to.
- To ensure all flushing regimes of low use outlets are adhered to.
- To ensure all water systems are inspected and tested as required by legislation and good practice.
- To ensure all documentation is completed and incorporated in the University of Lincoln database.
- To ensure that no modifications are made to water systems unless approval is obtained from the Estates & Commercial Facilities Department.
- To arrange any remedial works following inspection.

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#### **D. Estates & Commercial Facilities Compliance Officer currently Chris Harrison**

- To ensure that every University campus and every susceptible building has a Legionella audit and any negative findings are actioned appropriately.
- To ensure the University complies with legislation by continual assessment and comparison with the items listed in section 3.1.

Refer to the ***Organogram*** on page 9 for line management responsibilities


#### 3.3 Guidance

##### **Audit performance**

- a) Keep a central register of all Legionella assessments.
- b) Establish working procedures to ensure that Legionella risks are correctly managed in the work carried out on behalf of the University of Lincoln.
- c) Forward copies of Legionella assessments to relevant stakeholders, any routine testing/maintenance measures that are required to manage the risks as specified in the Legionella assessment.
- d) Ensure procedures are in place to carry out and record:-
  - a. Routine testing/maintenance measures, such as flushing of little used outlets and checking of hot and cold-water temperatures as specified in the Legionella assessment.
  - b. Specialist routine maintenance, such as dip slide tests and biocidal treatments, as detailed in the Legionella assessment.

No alterations on the water systems shall be carried out unless it is approved by the Responsible Person or his deputy. This will allow the University to comply in full with HSE L8 (2013) with constant auditing of work in progress, planned maintenance procedures and monitoring regimes, it is essential that all log books are up dated and are current. (This is currently held by the term contractors, in their offices on the Brayford Pool site).

In the event of a LEGIONELLA POSITIVE water sample returning from the laboratory or any untoward findings, the said reporting procedure shall be adhered to. All information received shall be forwarded to the Responsible Person and the nominated deputy for immediate action. IF no instruction has been received to carry out remedial works within 24 hours, the request shall again be made in writing, with a copy also going to the Estates and Campus Services Compliance Officer and to the Director of Estates & Campus Services, the Reporting Procedure shall be adhered to as per the attached flow chart.

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### 3.4 Communication

Communication in reporting shall be FAIL SAFE, in other words adhering to the above procedure. The Compliance Officer will then inform the duty holders in person and then it is the Compliance Officers role to ensure the point is actioned according to the previously mentioned priority at section 3.2.1 e.


All buildings and areas that have water services are susceptible to colonisation by Legionella.

All buildings containing hot and cold water systems shall have a Legionella risk assessment in accordance with HSG274 Part 2 (2014) Appendix 2.1 Legionella risk assessment.

A scheme shall be established to follow the procedures set out in L8 (2013), which shall include the following; this will vary from site to site depending on the risk assessments. This is not an exhaustive list and L8 (2013) shall be consulted to provide a comprehensive set of actions by the Compliance Officer and reviewed as deemed necessary by any changes of use or changes in the risk assessments and/or reviewed annually).

- a) Bi-annual audit of all water services to all buildings on every Campus.
- b) Annual cleaning and disinfection of all hot water Calorifier's including individual point of use water heaters.
- c) Inspection of water storage tanks every twelve months Drawdown checks over a 24hr period annually on all static cold-water tanks to check a sufficient flow through them.
- d) Visual checks of temperatures and settings of calorifiers every month, random water samples taken for testing of presence of Legionella to ensure all covered within a 10 month period.
- e) Temperatures of hot and cold water outlets every month (Sentinel taps).
- f) Point of use water heaters checked monthly for temperature setting within 1 minute of opening tap.
- g) Legionella water samples to be taken annually (where appropriate).
- h) Descaling and disinfection of shower heads (quarterly Flushing of infrequently used outlets).
- i) Re-assessment of individual water systems when changes made to them to check for impact on Legionella risk assessments.
- j) Checking all other outlets on a rotational basis over a 12 months period recording temperatures in logbook.

The Water Risk Assessments and logbooks are computer based. Information regarding assessments and the buildings' log books are recorded and filed on this programme, which is accessible, by Estates & Campus Services monitoring and inspections of water systems is recorded in the logbook and the water risk assessment is updated following any works, alterations or subsequent re-assessments. Tight control shall be established with the use of appropriately trained contractors. This will entail monitoring, as set out in the individual logbook.

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### 3.5 Training

The previously nominated staff shall be trained and certified to BOHS 901 certificate level, ensuring they understand the need for measures to control Legionellosis and the need to take care in the recording and reporting procedure. Basic instruction on record keeping and monitoring techniques is taught as part of the BOHS 901 syllabus, with health and safety in mind. Refresher training will be carried out every 24 months.

### 3.6 Auditing

It is essential that “the responsible person” ensures the continuous auditing of all logbooks and the monitoring of all risk assessments is being carried out.

After all risk assessments have been completed and the monitoring programme is established, the records shall be continually updated in accordance with the programme for the individual building and all documentation shall be kept in an accessible location for auditing. The Risk Assessment and logbook will be reviewed in accordance with HSG274 Part 2 (2014) Appendix 2.1 Legionella risk assessment.

This procedure will be reviewed and audited on an annual basis.

### 3.7 Disinfection

Water services shall be disinfected for any of the following reasons:

- a) New installations before being taken into use to remove contamination, which may have occurred during construction.
- b) If any routine inspection shows it to be necessary.
- c) If the system or part of it has been substantially altered or entered for maintenance purpose in a manner that may lead to contamination.
- d) Following an outbreak or suspected outbreak of legionellosis or any other water borne infection/disease.


Disinfection shall be carried out in accordance with BS6700 (2006).

### 3.8 New Build and Refurbishments

All new buildings and refurbishment work will be bar-coded to comply with our current bar-coding system and added to the electronic compliance system in use.

The risk assessment will be part of the handed over documentation on completion.

The responsible person and/or his deputy shall obtain confirmation that any new build or refurbishment work complies with the requirements of the L8 ACOP.

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### 3.9 Existing Buildings

The staff within existing buildings responsible for the operation and control of spaces shall be responsible for flushing and maintaining flushing records recording.  
The staff who use the space will be the ones who will know which outlets are used more than once a week and which are not used so often and will need flushing.  
The extent and details of the flushing will be set out in the risk assessment.  
The flushing records will need to be uploaded on to the University of Lincoln database, Planon.

### 3.10 Legal Requirements

**Health and Safety at Work etc Act 1974** is the statutory instrument that underwrites and legally enforces HSC L8 (2000).

**The Management of Health & Safety at work Regulations 1999** to ensure that a suitable and sufficient assessment should be carried out to identify and assess the risk of Legionellosis from work activities and water sources on the premises and any necessary precautionary measures.

**The Control of Substances hazardous to Health Regulations 2002** relates to the risk from hazardous microorganisms, including Legionella and chemicals such as biocides and disinfection agents. Under these regulations, risk assessments and the adoption of appropriate control measures are required to be put in place.

**RIDDOR Regulations 2013** is the legal reporting mechanism by which dangerous incident/s occurrences including outbreaks of legionnaire's disease are notified to the Health and Safety Executive.


**HSE ACOP L8 (2013) Control of Legionella Bacteria in Water Systems (Approved Code of Practice)** is the Approved Code of Practice and Guidance for the control of Legionella bacteria in water systems sets out the statutory requirement for dealing with risk. This applies to all premises with a system/s. This document includes consideration of the development of new control technologies and takes account of a number of points that have arisen in the practical application of HSG 70 (superseded). This document has "special legal status" and is considered as being law.

### 3.11 Supplementary Documentation

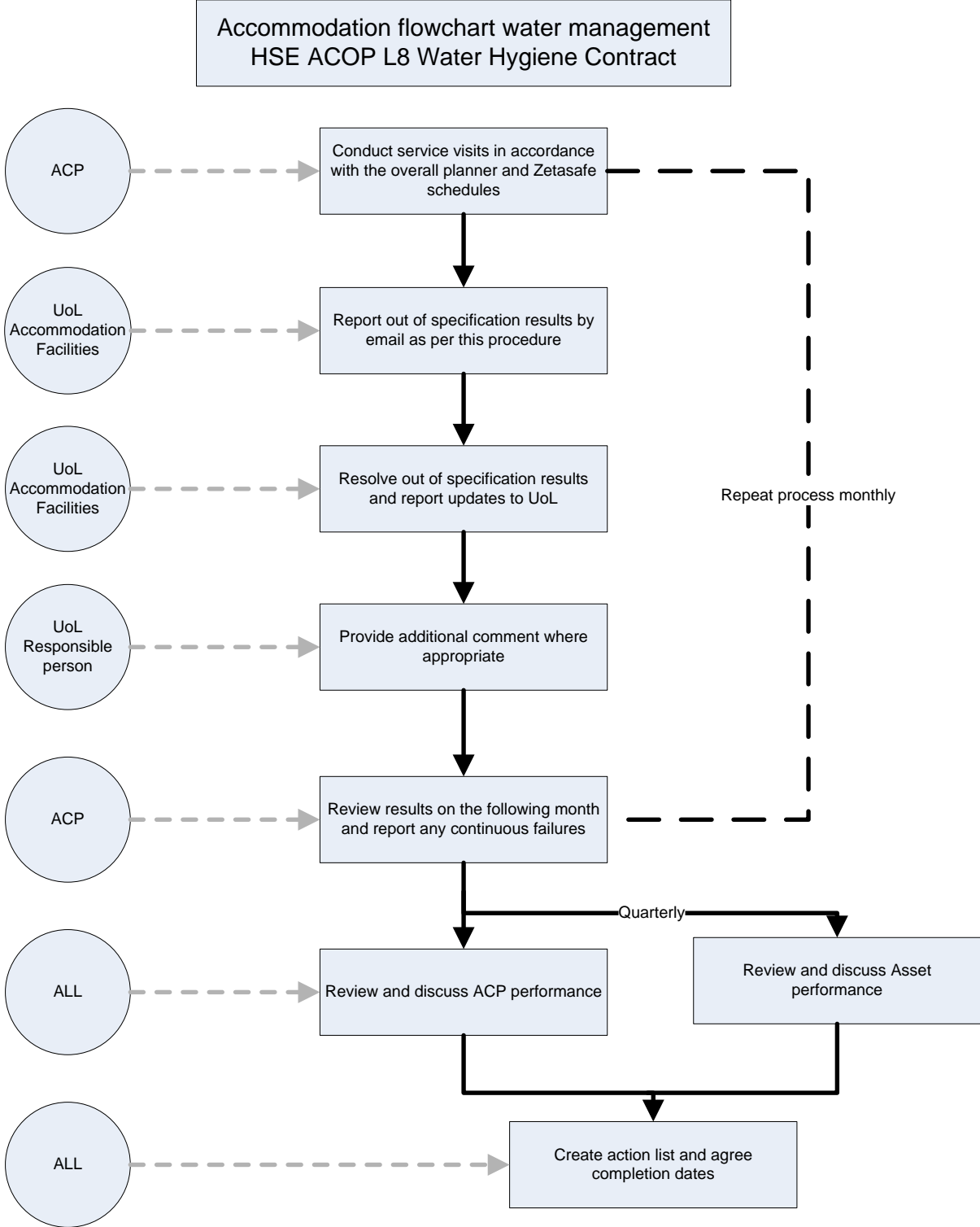
**C.I.B.S.E TM13 (2000)** this Technical Memoranda offers collective advice on how to minimise the risk of Legionnaires disease from engineering services in building and complements and enhances HSC L8 (2000).

**BS 6700: 2006 + A1; 2009** specification for design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.

**BS8580:2010** Water quality risk assessments for legionella control – code of practise

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3.12 Flowchart





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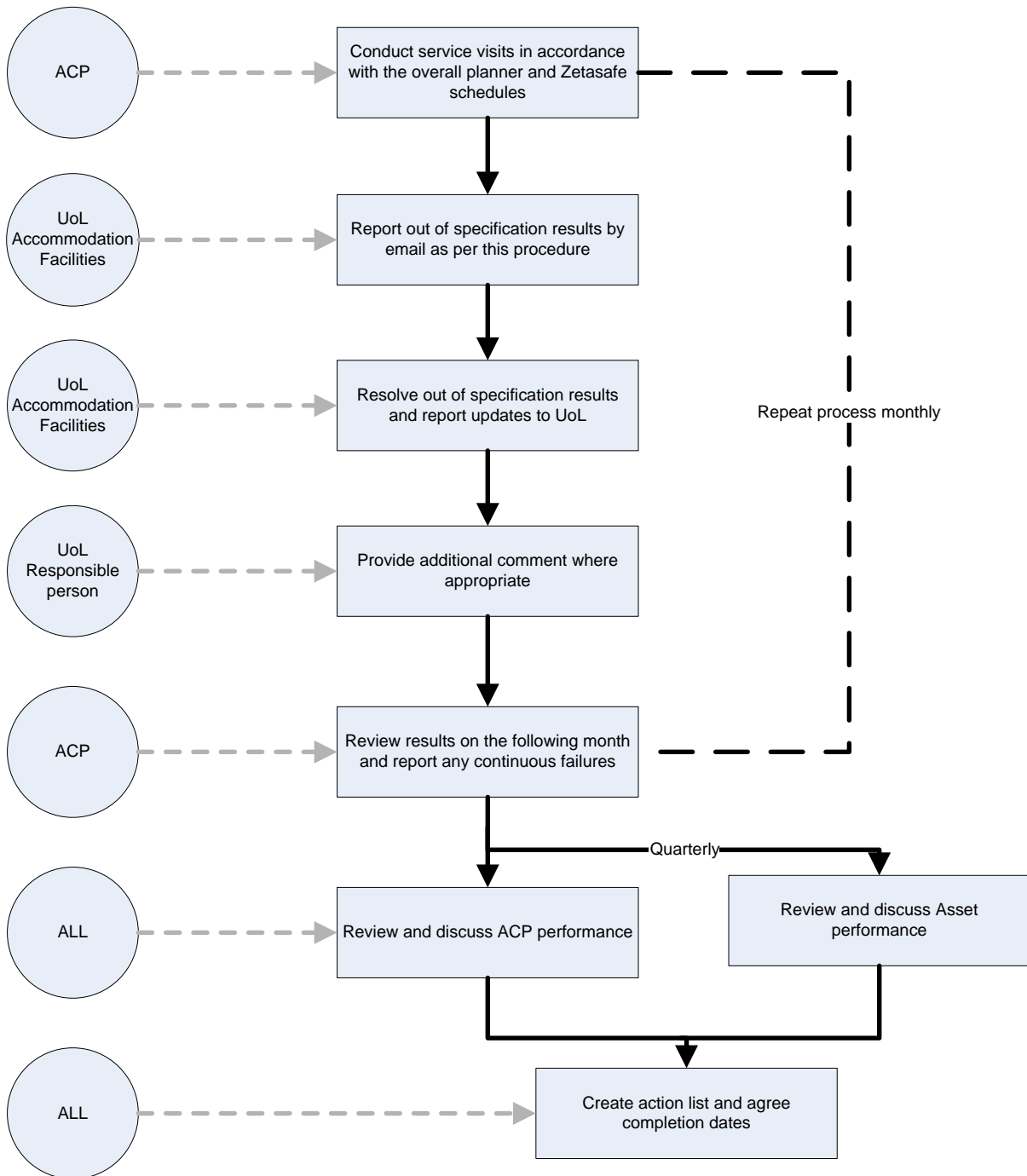
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UNIVERSITY OF LINCOLN

## Non residential flowchart water management HSC ACOP L8 Water Hygiene Contract



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New projects  
Water system design approval process

