

**WATER TANKS CAPACITY ASSESSMENT**

**AT**

**ON BEHALF OF  
Testclient201612011156**

**No Photograph**

**COMPILED BY  
Oleball Consultant**

**TETRA CONSULTING LTD**



**Report No: W\_PRISM-3331\_WATER\_TANKS\_CAPACITY  
Date: 08/12/2016**

**THIS REPORT CONTAINS 20 PAGES  
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**Quality Check By: <QA Manager Name>**

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### 1.0 LB Risk Assessment

#### 1.1 Scope

Tetra Consulting Limited were instructed by of Test client 201612011156 to carry out a Water Risk Assessment of . This report refers to the visit by Eleksil Consultant on 08/12/2016.

#### 1.2 Scope of Work

Scope of Work

#### 1.3 Summary of Systems Surveyed

Summary of Systems Surveyed

#### Additional Notes:

The systems listed within this report (listed above) represent the systems surveyed as part of this risk assessment and may not be the total number of systems present on site.

**Observations:**

None

**Recommendations:**

None

### 3.4 Other Sources

A Contamination		B Amplification		C Through-flow		D Transmission		E Exposure		F Susceptibility		G Management Risk	
0	Chemically controlled	1	Cold, hot or treated <20C, >50C	0	High turnover	0	Still or smooth flowing	1	Brief and few	1	General	0	Confident
1	Wholesome	4	Warm or cool >20-31C, <45-50C	1	Moderate turnover, flushed or exercised	1	Splashing	2	Brief and numerous or moderate	5	Some susceptibility selection		
2	Clean and stored or softened							4	Prolonged and numerous				
4	Exposed to contamination							5	Near optimum 32-42C	4	Low or no turnover, excessive bleed	4	Aerosol generating
8	Contamination	10	Lp 501 present										

Location	Asset	Sources Type	Sources present	Individual Risk Categories							Total Score	Current Legionella Risk	Inherent Risk	Temp.	Sentinel outlet	Aerators	Observations
				A	B	C	D	E	F	G							



## 3.5 Management of Legionella and Schema of Control

### 3.5.1 Management

Requirement	Present Yes /No	Requirement	Present Yes /No
Is there a written log book on site:			
Responsible people			
Is there an up to date Nominated Responsible Person?		Name of Nominated Person	Not Applicable
Is there an up to date Nominated Deputy Responsible Person?		Name of Nominated Deputy Person	Not Applicable
Are those with responsibility for Legionella control and their deputies provided: (Maintenance staff / Water Treatment Contractors)?		Are their contact details provided?	
Is there an up to date Duty Holder		Name of Duty Holder	Not Applicable
Are their roles and responsibilities provided?		Are lines of communication provided?	
Are there up to date personal training records or summaries provided?		Is there a log detailing visits by contractors, consultants and other personnel?	
Scheme of control systems			
Does the water log book contain written "Scheme Of Control"		Are all systems included in the scheme of control?	
Is the log book and scheme of control in use?		Are elements in the scheme of control assigned to individuals:	
Are system operating control parameters provided?		Are action plans provided for when control parameters are exceeded?	
When control parameters are exceeded, have actions been recorded?		Are shut down and start up procedures provided?	
Are there plans of schematic drawings of the water systems?		Are the main findings of the legionellosis risk assessment provided?	
Are records kept and retained throughout the period for which they remain current and for at least two years after that period?		Records of any monitoring, inspection or downtime should be retained for at least five years	
Cleaning and Samples			
When was cleaning and disinfection last undertaken?	Not Applicable	Are cleaning and disinfection certificates present?	
Are cleaning and disinfection procedures provided?		Are results of chemical or microbiological checks present?	
When were samples last taken?	Not Applicable	Additional comments	Not Applicable

**Observations:**

None

**3.5.2 Schema of Control and Records:****Observations:**

None



### 3.6 Schematic Drawing

### 3.7 Analysis Results

Observations:

## 4.0 Appendices

### 4.1 Water System Description

### 4.2 Legislation

In undertaking this risk assessment, the requirements, practice and guidance of the following legislation and publications have been taken into account, where appropriate :

1. Legionnaires' Disease – The control of legionella bacteria in water systems. Approved Code of Practice & Guidance L8 (Fourth Edition)& Technical Guidance HSG274
2. Health Technical Memorandum 04-01: The control of Legionella, hygiene, "safe" hot water, cold water and drinking water systems. Parts A and B
3. The Control of Substances Hazardous to Health (COSHH) Regulations 2002
4. The Water Supply (Water Fittings) Regulations 1999
5. Health and Safety at Work etc Act 1974
6. BS 8558:2011 - Guide to the design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages – Complementary guidance to BS EN 1206 Design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages.
7. BS 8580:2010 – Water Quality – Risk Assessments for Legionella Control – Code of Practice

### 4.3 Allocation of Responsibilities

#### 4.3.1 Duty holder

Whether all aspects of Legionella policy and its implementation are carried out by individuals employed directly or contracted, the Duty Holder has a responsibility, under the Health and Safety at Work act 1974, to ensure those individuals are provided with adequate resources and that the chain of command, lines of communication and management control between the company and the individuals concerned are in place and effective.

The Duty Holder is responsible on behalf of the employer for all aspects of the Legionella policy, whether by direct employees, under contract or subcontract:

- The carrying out of a legionellosis risk assessment.
- The elimination of the risk wherever it is reasonably practicable.
- Where elimination is not reasonably practicable, devising and implementing a scheme of precautions to control the risk.
- The maintenance, monitoring and management of the precautions controlling the risk, including reviewing the risk assessment if there has been any material change and at intervals not exceeding two years.
- The procurement of competent help as required and ensuring that the organisations and individuals deployed are competent.
- The appointment of a Responsible Person to oversee and coordinate the control of the risk of legionellosis.
- The keeping of records.
- Notifying the relevant enforcing authority of any work-related cases of legionellosis

#### 4.3.2 Responsible person

Much of what is required of the Duty Holder is usually delegated to the Responsible Person for implementation, either as a direct employee or under a contract and that individual therefore needs to have an up to date and overall working knowledge of the control of legionellosis at the premises under their control. It is probable the Responsible Person would consult the Duty Holder before making major decisions, either as a matter of routine (such as appointing a contractor or authorising a subcontractor), or in a crisis (such as in the event of an outbreak of legionellosis), but this person also needs to have the authority to act alone if necessary.

The legionellosis risk assessment and a system for receiving current relevant information (for example, a summary reporting procedure or regular audit, etc.) can be used by the Responsible Person to provide their working knowledge. Their technical competence needs to be sufficient to enable them to:

- appraise the competence of others, including any specialist advisors
- ensure that faults and anomalies are identified
- ensure that corrective action is suitable and implemented effectively.

It may prove impracticable for the Responsible Person to gain and maintain a detailed technical knowledge of legionellosis control, so there needs to be a comprehensive scheme of precautions incorporating control limits and action plans for correcting deviations, with staged trigger points where appropriate.

### **4.3.3 All**

Under the Health and Safety at Work act 1974 every individual with responsibilities in the scheme of Legionella control is responsible for maintaining vigilance in carrying out their work and for drawing matters of evident concern to the attention of the appropriate person.

### **4.3.4 Record Keeping**

The client is responsible for ensuring that all records, relating to water and Legionella management, are kept up to date at all times.

Under the LII Approved Code of Practice and Guidance all monitoring records need to be kept for a minimum period of 5 years (Paragraph 67).

## 1.4 Recommendations

A number of recommendations were identified during the assessment and have been prioritised for remedial action in the table below:

Priority	Number Of Actions	Actions Required
1	0	Require immediate remedial action.
2	0	Require action within 1 month and completion within 3 months
3	0	Require action within 1 month and completion within 6 months.

## 1.5 Risk Rating & Conclusions

The current risk of legionellosis in the water systems was therefore deemed to be:

Recommended review date: December 2017

2.0 ACTION PLAN

Priority 1	Priority 2	Priority 3
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## 3.0 ASSESSMENT

### 3.1 Risk Assessment

The purpose of this assessment is to enable a valid decision to be made regarding:

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

This assessment includes identification and evaluation of potential sources of risk and:

- The particular means by which exposure to *Legionella* is to be prevented.
- If prevention is not reasonably practicable, the particular means by which the risk from exposure to *Legionella* is to be minimised.

Where the risk of assessment demonstrates that there is no reasonably foreseeable risk or that the risks are insignificant and unlikely to increase, no further assessment or measures are necessary. However, should the situation change, the assessment should be reviewed and any necessary changes incorporated.

The assessment should be reviewed regularly (at least every two years) and whenever there is a reason to believe that the original assessment may no longer be valid, for example:

- Changes to the plant or water system or its use
- Changes to the use of the building in which it is installed
- The availability of new information about risks or control measures
- The results of checks indicating that control measures are no longer effective
- A case of Legionnaires' disease / Legionellosis is associated with the system

Each water source inherently presents a different risk. This risk assessment assesses the actual risk presented by each type of water source taking account the controls in place and how it is being managed at the time of the assessment to provide the current legionellosis risk of the source.

It also provides the inherent legionellosis risk, which is the risk presented when the water source operates normally within control parameters taking into account design, construction and aerosol generation.

There is a chain of events leading to the infection of a human by *Legionella* spp. which are considered in the risk assessment:

- a) contamination;
  - b) amplification;
  - c) through-flow
  - d) transmission;
  - e) exposure;
  - f) host
- susceptibility.

A Contamination	B Amplification		C Through-flow	D Transmission	E Exposure		F Susceptibility		G Management Risk	
0 Chemically controlled	1	Cold, hot or treated <20C, >=50C	0 High turnover	0 Still or smooth flowing	1	Brief and few	1	General	0	Confident
1 Wholesome	4	Warm or cool >20-31C, <49-50C	1 Moderate turnover, flushed or exercised		1 Splashing	2	Brief and numerous or moderate	5		
2 Clean and stored or softened				4		Prolonged and numerous	8	Substantial susceptibility selection		
4 Exposed to contamination										
8 Contamination	5	Near optimum 32-42C	4 Low or no turnover, excessive bleed	4 Aerosol generating	5	Excessive	8	Substantial susceptibility selection	4	Not confident
10 Lp 501 present										

Each category is assessed providing a total score. The total scores have been categorised into low, medium and high legionellosis risk categories as follows, although it must be borne in mind that a high legionellosis risk does not necessarily indicate a current significant risk to health and a low legionellosis risk does not mean that the risk should be considered to be negligible.

Total Score	Legionellosis Risk	Priority
21 – 54	High	1
11 – 20	Medium	2
0 – 10	Low	3

## 3.2 Water Tanks

### 3.2.1 Rectangular Cold Water Storage Tank 1

Scoring Matrix								Inherent Risk	7	Low
Location of tank:	1st floor Baby Change					Tank serves:				
Is tank currently on-line?						Is tank easily accessible:				
How many compartments in the tank:						Is the flow between the tanks balanced		Not Applicable		
Tank supplied from:						Raw or soft water:				
Is the water treated before entering the tank?						Does the cold water tank supply drinking water outlets?				
Capacity (Litres):	5,400					Dimensions HxWxL (metres)	2.0x2.0x2.0	% of volume stored:	80	
Tank construction material						Is the tank material WRAS approved?				
Is there a lid:						Is the tank lid and sides adequately insulated:				
Material of lid construction:						Is the lid constructed of WRAS approved material				
Does the lid incorporate an air vent:						Is the lid air vent screened:				
Does the lid sufficiently block light ingress:						Local pipe work insulated:				
Is tank linked to other tanks:						Specify how:				
Is the tank supply also connected to F&E tank:	Yes					Is it "Up Stream" Or "Down Stream" and at what distance:		/		



Do expansion pipes enter the tank:		Is the expansion pipe suitably sealed:	
Is the tank fitted with an overflow pipe:		Is the overflow pipe suitably screened:	
Is the tank fitted with an overflow warning pipe:		Is the overflow warning pipe suitably screened:	
Does the overflow warning pipe discharge in a conspicuous location:		Is the inlet opposite the outlet:	Not Applicable
Is there evidence of stagnation in the tank:		Is there evidence of corrosion in the tank:	
Is there settled inorganic sediment in the tank:		Is there evidence of slime / biological contamination:	
Is the tank in good physical condition:		Are there booster pumps associated with the tank:	
Incoming supply temperature (°C):		Stored water temperature (°C):	
Ambient temperature (°C):		Tank room temperature (°C):	

**Observations:**

None

**Recommendations:**

None

### 3.2.2 Circular cold Water Storage Tank 2

Scoring Matrix								Inherent Risk	7	Low
Location of tank:	1st floor Baby Change						Tank serves:			
Is tank currently on-line?							Is tank easily accessible:			
How many compartments in the tank:							Is the flow between the tanks balanced			

Tank supplied from:		Raw or soft water:	
Is the water treated before entering the tank?		Does the cold water tank supply drinking water outlets?	
Capacity (Litres):	11,310	Dimensions HxR (metres)	2.0 x 1.5
		% of volume stored:	80
Tank construction material		Is the tank material WRAS approved?	
Is there a lid:		Is the tank lid and sides adequately insulated:	
Material of lid construction:		Is the lid constructed of WRAS approved material	
Does the lid incorporate an air vent:		Is the lid air vent screened:	
Does the lid sufficiently block light ingress:		Local pipe work insulated:	
Is tank linked to other tanks:		Specify how:	
Is the tank supply also connected to F&E tank:	Yes	Is it "Up Stream" Or "Down Stream" and at what distance:	/
Do expansion pipes enter the tank:		Is the expansion pipe suitably sealed:	
Is the tank fitted with an overflow pipe:		Is the overflow pipe suitably screened:	
Is the tank fitted with an overflow warning pipe:		Is the overflow warning pipe suitably screened:	
Does the overflow warning pipe discharge in a conspicuous location:		Is the inlet opposite the outlet:	Not Applicable
Is there evidence of stagnation in the tank:		Is there evidence of corrosion in the tank:	
Is there settled inorganic sediment in the tank:		Is there evidence of slime / biological contamination:	
Is the tank in good physical condition:		Are there booster pumps associated with the tank:	
Incoming supply temperature (°C):		Stored water temperature (°C):	
Ambient temperature (°C):		Tank room temperature (°C):	

**Observations:**

None

**Recommendations:**

None

### 3.3 Storage Calorifier

#### 3.3.1 Calorifier 1

Scoring Matrix								Inherent Risk	7	Low
Location of calorifier:	1st Floor Baby Change						Calorifier serves:			
Calorifier type:	Direct gas						Orientation:			
Capacity (Litres):	14,198						Calorifier supplied from:			
Is the calorifier easily accessible:	Not Applicable						Primary method of heating:			
Calorifier on line:							Is A HWS "Return" fitted:			
If there is a return, is circulation pump fitted:							How many circulation pumps are fitted:			
Where are the circulation pump (s) fitted:							Are the duty and standby pumps alternated weekly:			
Is there a non return valve fitted on the cold water feed?							Are non return valves installed on the discharge side of the pumps			
Is the associated pipe work insulated:							Calorifier hours of operation:			
Anti-stratification measures in place:							Is the calorifier adequately insulated:			
Are anti-stratification measures operating correctly:							Anti-stratification hours of operation:			
Are temperature gauges fitted on the pipework:							Is temperature stratification present:			
Is there a drain fitted:							Are the temperature gauges working correctly:			
Is drain point easily accessible:							Where is the drain fitted:			
Initial drain temperature (°C):							Is drain valve operational:			
Is the calorifier linked to other calorifiers:							Condition of drain water:			
Calorifier set temperature (°C):							Is the calorifier set at a suitable temperature?			
Supply / Flow Temperature (°C):							Is the calorifier supply / flow at a suitable temperature?			
Return Temperature (°C):							Is the calorifier return at a suitable temperature?			