

<b>Committee(s):</b>	<b>Date(s):</b>
Markets	28 January 2015
<b>Subject:</b> Smithfield Market – Condenser Water Cooling System – update	<b>Public</b>
<b>Report of:</b> The City Surveyor	<b>For Information</b>

### **Summary**

This report provides Members with an update on the performance of Smithfield Markets' Condenser Water Cooling System, which serves Tenants' refrigeration equipment, and the works currently being undertaken to improve the system.

The performance of the condenser water cooling system since the last report in November has been satisfactory.

A total of five fridge condensers have now been replaced by Tenants with upgraded units. It is reported that a further two are also to be replaced.

Phase 3 of the City's improvement works is complete apart from some final flow checks of the Poultry Market supplies and the inspecting, flushing and cleaning of Poultry Market distribution pipework, which has been held up because access into the service duct in which the pipework is located has been prevented following safety concern raised about the presence of asbestos. A decision will be taken shortly on whether this can be omitted.

The City intends to increase gradually the system operating temperature to reduce running costs and wear on cooling tower fans, and a proposal has been submitted to the Market Tenants' Association for agreement.

The City will continue to monitor the system closely.

### **Recommendation(s)**

Members are invited to:

- Note the contents of this report.

## **Main Report**

### **Background**

1. The Market's condenser water cooling system removes waste heat from 120 tenants' refrigeration units in East, West and Poultry Markets and dissipates it to the atmosphere via five cooling towers located in the Poultry Market. The system is operated and maintained by the City Corporation.
2. Over the last four years the City Corporation has been undertaking a programme of works to improve the system in East and West Markets. The first two phases are complete.
3. A third phase of work intended to address dirt contamination in the system commenced in June 2014 and is largely complete. This has involved work in East, West and Poultry Markets to inspect, clean and flush pipework and install additional filtration equipment.

### **Current Position**

4. The cooling system is currently working well and supplying water to the Tenants' fridge condensers at 20°C. Since the last report there have been no further operating issues to report.
5. A proposal to increase the low temperature setting of the system has been put to the Market Tenants' Association. This involves increasing the setting each week in stages up to 25°C. The effects on fridges will be observed and any problems assessed. The higher temperature will reduce the demand on the cooling towers and the City's operating costs. Fridges will have to work slightly harder.
6. Four Tenants in East and West Markets have now had five fridge condensers replaced with updated units. The City has been advised two further condensers will be replaced shortly. Details of the fridges concerned are given in the Non-Public Annex to this report. It is welcome news that more Tenants are gradually taking this step.
7. Funds are being sought for the proposal to improve the alarms on the system and facilitate pump maintenance operations, the cost of which is assessed at about £15,000. This would provide an alarm panel for the system in the Constables' office and the ability to alternate duty/standby pumps as a regular routine. It is anticipated a bid for FY2015/16 funding will be made.
8. Phase 3 of the improvement works, intended to address dirt contamination problems in the system, is now complete apart from some final flow checks of the Poultry Market individual branches and the inspection, flushing and cleaning of the Poultry Market distribution pipework. In late November access into the service duct beneath the 1<sup>st</sup> floor balcony through which the pipework runs was unfortunately prohibited due to concerns about the presence of asbestos. The outcome of tests arranged by the Property Facilities Management Team is awaited; in the meantime it has not been possible to gain access to this pipework.

9. A decision will be taken shortly in consultation with the City's Consulting Engineers, Aecom, on whether this can be omitted. Analysis of readings taken in Tenants' basement fridge plant rooms indicates the water pressure is healthy at all branches with sufficient flow to all operating fridges, with little sign of dirt in water run off to drain, suggesting there are no flow restrictions or significant blockages.
10. No further meetings with Tenants have taken place since the last report. The Principal Engineer has inspected fridges with Tenant of Stall 222/223 in the Poultry Market and advised him of the current flow rates, in order to assist with the planning of additional refrigeration equipment to this stall.

### **Corporate & Strategic Implications**

11. The system supports the following Strategic Aims:
  - To provide modern, efficient and high quality local services and policing within the Square Mile for workers, residents and visitors with a view to delivering sustainable outcomes.
  - To provide valued services to London and the nation.

### **Implications**

12. The cooling system provides a critical service for Tenants' refrigeration equipment and the City is completing its programme of work to improve its performance and resilience. A failure of the system could expose the City to claims for loss or damage suffered by tenants if refrigeration equipment broke down as a result.
13. The replacement of undersized fridge condensers by tenants is continuing and will address historic problems with stall temperatures in the associated stalls.

### **Conclusion**

14. The performance of the condenser water cooling system since the last report in November has been satisfactory.
15. Phase 3 of the City's improvement works is almost complete.
16. A total of five fridge condensers have now been replaced by Tenants with upgraded units. It is reported that a further two are also to be replaced.
17. The City intends to increase gradually the system operating temperature to reduce running costs and wear on cooling tower fans, and a proposal has been submitted to the Market Tenants' Association for agreement.
18. The City will continue to monitor the system closely.

**Background Papers:**

Report of the City Surveyor (ref CS403/14) dated November 2014 to Markets Committee: 'Smithfield Market – Condenser Water Cooling System - update'

**Appendix 1:**

Summary of progress on Phase 3 improvement works

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## Appendix 1: Summary of progress on Phase 3 improvement works

Section	Description	Position
A	Installation of in-line duplex filters, removal of redundant strainers, internal inspection of pipework	Complete and in use
B	Installation of new sidestream filtration unit in cooling tower circuit	Complete and in use
C	Installation of additional sidestream filtration unit to serve cooling towers 1 & 2	Complete and in use
D	Opening up of pipework to East Market in car park for inspection, installation of additional isolating valves and dirt collection pockets	Complete
E	Installation of new valves on all individual branches in Poultry Market (total 26), jet cleaning and flushing of pipework, setting flow rates	New valves: complete Cleaning/flushing of pipework: held up due to access denied Branch flow rate measurement and adjustment: final checks being made
F	Replacement of main flow meter in East Market circuit and new flow meter in Poultry Market circuit.	Complete and in use
G	Installation of pressure sensor in Poultry Market circuit to monitor system pressure and control pump speed	Complete and in use