

<b>Committee:</b>	<b>Date:</b>
Markets	16 July 2014
<b>Subject:</b> Smithfield Market – Condenser Water Cooling System - update	<b>Public</b>
<b>Report of:</b> The City Surveyor (Report CS 255/14)	<b>For Information</b>
<b>Summary</b>	
<p>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.</p> <p>The performance of the condenser water cooling system is currently satisfactory. Operating problems were experienced with two cooling tower fans in May which led to an increase in the water supply temperature. This caused difficulties for the refrigeration units of one Tenant, although did not appear to affect other units. All cooling tower fans are now running again.</p> <p>The third phase of the City's improvement works, aimed at addressing contamination in the system, is underway, and should be largely complete by the end of July.</p>	
<b>Recommendation(s)</b>	
Members are invited to:	
<ul style="list-style-type: none"> <li>• Note the contents of this report.</li> </ul>	

## 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 now complete and the City considers that the water distribution to Tenants' fridges now provides the optimum flow to each fridge unit.

3. A third phase of work is now underway on site intended to address dirt contamination in the system.

### **Current Position**

4. The cooling system is currently working well supplying water at 20°C to the Tenants' fridges.
5. In May failures occurred of the fans on two of the five cooling towers. The fans induce a draught through the cooling towers which cools the water. Replacement parts were not immediately available and with only three towers providing full cooling the water temperature rose above its normal level between 27 May and 3 June, and briefly on two other days after this, reaching 24-25°C. This resulted in complaints from one Tenant although no others reported problems.
6. All cooling tower fans are now returned to service. The holding of spare parts has been reviewed and critical replacement components will be held in store in future.
7. It appears from this that the vast majority of fridges are capable of working with water supplied at 24-25°C. This episode has acted as an unplanned 'stress test'. The need to run the system at a lower temperature to keep all fridges satisfied imposes a high demand on them and increases wear and operating costs. Ideally the system would be operated at a higher temperature.
8. Following completion of valve changes and commissioning, the City has now written to Tenants whose fridges were observed to be exhibiting signs of stress (indicated by higher than normal refrigerant pressure and/or temperature) during recent inspections. These fridges could be at risk in hot weather.
9. No further individual meetings with tenants have taken place since last year.
10. The main phase 3 works are now progressing on site, without an adverse effect on Tenants. The first section of the work has involved checking the condition of the 150mm steel pipes through the car park which supply East Market. No significant dirt accumulation was found here and the internal pipe condition was as would be expected for a 20 year old system. The pipes have at least 5-10 years of life left. The works should be largely complete by the end of July.
11. A non-public appendix to this report features in the non-public part of the agenda.

## **Corporate & Strategic Implications**

12. 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**

13. The cooling system provides a critical service for Tenants' refrigeration equipment and the City continues to monitor its performance closely. A failure of the system may expose the City to claims for the consequences.
14. Whilst the City provides water at a supply temperature of 20°C, it appears all but a few fridges can operate with a higher temperature of 24-25°C.

## **Conclusion**

15. The performance of the condenser cooling system is currently satisfactory, maintaining a water temperature of 20°C. However the temperature exceeded its normal level for around a week in May/June, due to faults on two cooling towers, causing problems for the equipment of one Tenant.
16. The City will continue to monitor the system closely and complete the Phase 3 works as soon as possible.

## **Background Papers:**

Report of the City Surveyor (ref CS171/14) dated 14 May 2014 to Markets Committee: 'Smithfield Market – Condenser Water Cooling System - update'

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