

Committee(s):	Date(s):
Barbican Centre Board	16 March 2016
Subject: CO ₂ Alarm Activation at ExHall1 High Voltage Transformer Room	Public
Report of: Director of Operations and Buildings Report author: Michael Dick, Barbican Centre	For Information

Summary

On 19 December 2015, the CO₂ alarm in the High Voltage Transformer Room for Exhibition Hall 1 was activated. This alarm continued to sound intermittently and, due to a combination of factors, it took three days for the issue to be fully resolved and thus to prevent the alarm from sounding, causing considerable distress and inconvenience to a number of residents.

At the Board's January meeting, it was requested that an apology be circulated to residents and that a report be produced following a full investigation in to this incident, identifying the lessons learnt and how a repeat could be prevented. This report provides information as to the cause of the issue and the lessons learnt as a result.

Recommendation(s)

Members are asked to note the report.

Main Report

Background

1. At the Board's January meeting, Members were advised of an incident concerning the CO₂ alarm activation on 19 December and its subsequent impact on residents.
2. It was advised at the meeting that a full investigation would be undertaken. At that stage it was believed that the incident had been caused either due to the pending London Film School enabling works, with controls and sensors not being connected to the control room because of the pending strip out, or due to incomplete commissioning of the new fire alarm system, which meant that there was no alarm in the control room.
3. The investigation has concluded however that both of the above theories were incorrect and entirely speculative. It has now become apparent that the root cause of the series of events and reactions leading to the initial extended alarm (and then repeat alarms over a period several days) was the failure of the control room operator to report the fault to Engineering or the duty Centre Manager.

Events of 19 December

4. At 12.14 on 19 December a fault condition activated in the Exhibition Hall High Voltage switch room and was received in the security control room. The audible alarm was accepted (muted) but the security officer did not alert relevant staff to the fault, hence it went unattended.

5. The fault continued to re-appear throughout the day, and was continually deactivated in the control room.
6. Later that day, the Engineering Shift received the following message from the Barbican Estates Office (BEO):

“There is a fault on our Transformer 42066 in Golden lane. BEO has already reported this to U.K. Power networks (Ref 239013J). We shouldn’t need to get involved this is just for our info).”
7. At this point it was reasonably assumed that the issue was for UK Power to resolve.
8. At 23.00, UK Power arrived on site and investigated the issue with our engineers. (For safety and regulatory reasons only UK Power has key access to the transformer room.) It was discovered that here had been a loss of supply to the local fire alarm panel and that this was the Centre’s responsibility to rectify rather than that of UK Power. Unfortunately the Centre’s night shift engineers could not locate the source of the power failure. They asked the following morning shift to continue the investigation and this team subsequently located the cause of the problem and restored power to the alarm panel.
9. There were no further fault activations reported on 20 or 21 December. However, on 22 December the City Corporation’s Environmental Health team contacted the Head of Engineering directly about the continuing issue of an intermittent alarm. The shift engineers attended to silence the alarm and monitor the panel for reactivation until the arrival of the Global (the Centre’s fire alarm maintainer) on 23 December, when they attended the site and fixed the problem, which turned out to be an intermittent fault with a battery back-up unit.

Lessons Learned

10. What we have evidenced from downloads of the panel fault and event logs is that the alarm and sensor fault indicator was working correctly and had also correctly actuated the fault alarm in the Centre’s security control room. Unfortunately the alarm was put into silent mode locally by the control room operator and no report was made to the Centre Manager or Engineering Supervisor. The control room operator was unaware that there was an audible alarm sounding at the fault site when they silenced the local control room alarm.
11. This was the root of the problem, as if the fault had been correctly reported, engineering would have been able to identify the panel in question, and commence immediate investigations into the power failure and/or call out the Centre’s fire alarm maintainer who are on 24hr call out.
12. Although training on the new fire alarm system (and its many panels) has been taking place since January 2015, it is apparent that some people have not received sufficient training and thus procedural policies have not been followed. An audit and review of training, induction procedures, and operational policies

needs to be conducted to ensure that the reactions to the systems information and alarms are robust and reliable in the future.

13. Although the event was intensely irritating for those close to the alarm, the alarm system “worked” in preventing danger to life. The Health & Safety Executive have reported one fatality in the past year from an engineer entering a transformer chamber that had been flooded with CO₂, so the installation of the CO₂ detection device serves an important part of the installation’s safety systems.

Actions following the Incident

14. The Security Dept. now has a procedure in place so that when a fault occurs the Controller will contact the duty Centre Manager or, if overnight, the Engineering Supervisor, to investigate/action as appropriate. A detailed log of all such incidents will be maintained.
15. An audit and review of training, induction procedures and operational policies is being conducted to ensure that the reactions to the detector and alarm systems information and alarms are robust and reliable. The installing contractor has been instructed to attend further briefing meetings to remind appropriate staff members of the operation of the system. This will take place following completion of the system cascade testing on 15 March. A briefing of Barbican Centre Engineering and Security staff, together with modification to the chain of communication has already taken place
16. A meeting has taken place with the Breton House Group chair and deputy chair, with the Barbican Centre Board Chairman in attendance, to provide a final debrief on the incident, to offer apologies and formulate and finalise a note to go to the House Group as follows:

Firstly I would like to offer my sincere apologies for the disturbance caused to residents during 19-23 December 2015. We have now undertaken a full investigation into this serious matter. The root of the issue has been found to be a human error, rather than any fault with the equipment or systems which 'worked' in terms of Health and Safety requirements and in preventing possible danger to life of any unprotected maintenance engineers.

As a direct response to this incident we are undertaking a full audit and review of training, induction procedures, and operational policies that need to be conducted to ensure that the reactions to the systems information and alarms are robust and reliable in the future. I would like to reassure residents that full measures have been taken to prevent such a repeat incident occurring, and again I make a full apology to all those affected.

17. The above final version was sent to the Chair of the House Group (on 7 March 2016) for distribution to residents as appropriate.

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