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July 3, 2018

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Attention: Ted Tolle

Subject: **USPS Seattle NDC, 34301 9th Avenue South, Federal Way, WA 98003**
Fire Alarm System Condition Report

Ted,

The United States Postal Service Network Distribution Center in Federal Way Washington has a campus fire alarm system with a central headend located in a custodial storage room, at approximately grid line K/4 of the NDC main building complex. The existing system was installed as an upgrade in 2001 and is manufactured by Simplex. The building was originally constructed in 1973. So the current fire alarm system replaced the original system that was 28 years old.

A site visit was conducted on June 5, 2018. The following report is based on observations made during the visit, comments offered by the facilities maintenance operations manager, and follow up review of the 2001 fire alarm upgrade shop drawings and other furnished documents.

System Description
The Seattle NDC has a Simplex 4100 series MINIPLEX network control fire alarm and detection system using Mapnet II addressable communications. The system configuration includes a work station computer and printer and uses speakers for building sound and voice alarm notification. There are (8) MINIPLEX panels with notification appliance circuit (NAC) power supply panels for operating the building alarm appliances (speakers and strobes) and for networking system detection and interface devices. Addressable system detection devices include manual stations, smoke detectors, heat detectors, and duct smoke detectors. Interface modules are also provided for fire sprinkler water flow and valve supervision, HVAC shutdown and reset, and breaker shunt trip.

The NDC is a 24/7 operating facility, and a fire alarm condition is transmitted to the fire department by telephone. The fire alarm system notifies designated supervisory duty personnel by pager and radio of a pre-alarm condition, and then provides a 5 minute alarm delay to allow investigation and alarm cancellation. In the event of an actual fire situation, protocols are followed to contact the fire department for response.

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The fire alarm system generally consists of manual stations at building exits, fire detection devices in penthouses, administrative areas, and utility spaces, fire detection devices for HVAC equipment, and alarm notification appliances throughout the building. Fire alarm detection devices are not provided in the main plant areas, which have fire sprinklers. Wiring consists of conductors in conduit. The system's addressable wiring protocol is Mapnet II, which is proprietary to Simplex.

Condition Assessment

The current Simplex fire alarm system is now 17 years old, and the existing 4100 series equipment has been discontinued since 2010. Maintenance and repairs are difficult and expensive due to the age of the equipment and unavailability of parts. Within a few years, the existing equipment will not have manufacturer support at all.

System fire detection devices (heat and smoke detectors) are past their rated life of 10 years.

It was reported during the June 5 site visit that system trouble conditions are common. For a recent repair at alarm system head end, it took over a month to obtain a necessary network replacement card. It was also noted the existing fire alarm system PC, software, and associated printer are all original 2001 equipment that is obviously outdated based on present computer technologies.

Recommendations

The Simplex 4100 series fire alarm system is obsolete and will soon no longer be supported by Simplex. The size and sophistication of the fire alarm system for a facility the size of the NDC requires that the fire alarm system be upgraded to current supportable technologies as a priority project. As the existing alarm network control system continues to age and require maintenance and repair without the availability manufacture maintenance and product support, the system will soon fail.

Fire detection sensing devices typically have a rated life of 10 years per NFPA 72. NFPA does not indicate a rated life for alarm indicating devices (horns, speakers, and strobes). Assuming 30 years, existing devices are about half of their life expectancy. Replacement of notification appliances as part of the system upgrade has been separated as an optional cost item in the attached estimate.

Respectfully submitted
Tom Urquhart PE

Attachments: Cost Estimate