Monitoring for Toxic and Combustible Gases in Parking Garages

The Application – Carbon Monoxide Monitoring in a Parking Garage

A hospital needed to monitor their parking garage for carbon monoxide. The carbon monoxide readings were integrated into their HVAC system – when ambient levels of carbon monoxide rose past a set level, a signal to the HVAC system increased the level of ventilation to reduce the carbon monoxide levels. If the carbon monoxide reading continued to rise a second alarm was triggered which turned on horns and strobes to evacuate the garage. The existing system was installed by an HVAC contractor. While the initial cost per point of gas detection was low, the on-going maintenance costs were high. The sensors needed quarterly calibration and only had a lifespan of 12-18 months. The sensors were not very accurate, resulting in the HVAC ventilation turning on more often than necessarily, increasing energy consumption and cost.

The Solution

The existing sensors and transmitters were replaced with Draeger's carbon monoxide sensor and transmitter. Draeger's carbon monoxide sensors only require bi-annual calibration, and have a lifespan of 5-7 years. The hospital was able to dramatically reduce maintenance costs by reducing calibrations from 4 times per year to 2 times per year. The cost to purchase and install sensors was also dramatically reduced as the Draeger sensors last 5 times longer than the previously used sensors. Energy costs have also gone down – the Draeger sensors are much more accurate, reducing the number of times that the ventilation system is triggered.

The Application - Combustible Gases in a Parking Garage

A municipal parking garage for CNG (compressed natural gas) powered city buses needed to replace an existing gas detection system. The existing system routinely had false alarms, the sensors needed frequent calibration, and the sensors needed to be replaced every 1-2 years. The garage was used to do maintenance on the buses, and to wash them. The environmental changes in the garage were causing the existing sensors to drift – when the garage doors were opened in the Winter the temperature in the garage dropped rapidly, and when the buses were washed the humidity level in the garage rose rapidly. Because CNG is lighter than air, the existing sensors were mounted in the ceiling – calibration work had to be done on a lift.

The Solution

A sequential system was designed using Draeger's patented dual-IR sensor technology. Tubes were run from the ceiling to the sampling system to pull samples from the ceiling to the system, which was mounted on a wall. The wall mounted system contained the sensors, making maintenance simple and efficient. Draeger's dual-IR sensors have a library of calibration curves that allows the sensor to be calibrated with methane but accurately read another gas. Because gases absorb IR energy on a curve, the use of a correction factor or multiplier would result in inaccurate readings. Draeger's dual-IR sensors are immune from drift due to environmental changes, only require a reference check on an annual basis, and have a typical lifespan of 10-15 years.

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