

THE MAKING OF AN APPLIED SOLUTION:

Toxic Gas Detection System

A well-known government laboratory was using a complex gas handling system to support experimental beamlines for clean energy research and development. Due to the highly toxic, corrosive, flammable, and pyrophoric nature of the gases used in such experiments, scientists required additional gas monitoring features beyond what was standard-equipped on their existing gas delivery system.

AES' high and ultra high purity gas delivery solutions are renowned for upholding the highest levels of safety in all the industries and environments in which they operate, which is why the lab selected the company to help them address their own unique toxic gas monitoring challenges.

CUSTOMER CHALLENGE

The laboratory was using a comprehensive gas handling system constructed of a number of hazardous gas source cabinets and inert gas panels, as well as MFC boxes, gas bubblers, and interconnecting process gas lines. The lab needed a way to monitor and detect potential gas releases from all complex elements of the gas handling system, and to channel that data into its existing Facility Monitoring System for seamless management. The solution also had to be intuitively operated to ensure ease of use and operator safety.

THE SOLUTION

AES custom-engineered a Toxic Gas Detection System for continuous toxic gas monitoring, which integrated fully with the lab's gas source equipment and Facility Monitoring System to deliver a comprehensive and seamless gas handling system.

APPLIED SOLUTION QUICK FACTS

- **Industries Served:** Government Laboratory; R&D
- **Application Focus:** Additional Safety Measure for Monitoring Gas Releases from Comprehensive Gas Handling System
- **Key Requirement(s):** Local and Remote Gas Monitoring; Uninterruptable Power Supply
- **Gases Monitored:** Toxic and Hazardous
- **System Configuration:** Standalone Toxic Gas Monitoring System with Full Integration into Customer's Facility Monitoring System



APPLIED SOLUTIONS

Key Construction Features

The standalone Toxic Gas Detection System monitors 13 different gas detectors which use Electrochemical, Hot-Wire Semiconductor, Galvanic Cell, Pyrolyzer, and Electrochemical principles to sense gas releases throughout the gas handling system. Each gas detector was mounted inside the gas detection unit, drawing from the gas' point-of-use to enable consistent and controlled extractive sampling.

The system was fully integrated into the laboratory's Facility Monitoring System and featured an eWON VPN router to enable remote monitoring and data/alarm logging. It was equipped with a 12" color touchscreen interface to provide easy-to-use navigation and configuration menus to monitor system status, modify alarm set-points, and review data and alarm logs.

THE RESULT

The Toxic Gas Detection System provided researchers with the capabilities to safely and seamlessly monitor the specialty gases that support their innovative beamline experimentation. The solution was developed for easy integration with the lab's gas source equipment to achieve the level of comprehensive, unified gas handling and detection required.

Key Safety Features

AES' Toxic Gas Detection System was equipped with remote and locally mounted tricolor light trees and audible alarms to indicate system status and warning, as well as provide added annunciation and evacuation alarm signaling. Each gas detector featured a replaceable cartridge to allow the laboratory to configure unique alarm and calibration set points on a per-detector basis. An Uninterrupted Power Supply (UPS) was also included to provide battery back-up in the case of power loss. Gas detectors were grouped into three different zones, allowing for easy visual confirmation of each zone's status via the unit's controller. These zones were user-configured by gas classification but could have been combined by area/location, by the tool being served, etc., depending on monitoring preferences.



Let AES Apply Innovation to Your Gas Delivery Challenge

Your process requirements are like no other, and your gas handling system should be too. AES' Applied Solutions bring together our robust product offerings, industry-leading services and vertical expertise to solve even the most complex gas delivery and distribution challenges—to benefit customers of all sectors and sizes who have highly specific application requirements. Through Applied Solutions, you can **tap into the innovation necessary to solve your specific gas delivery challenges.**

Tell us about your equipment needs today. Call **610.647.8744** or email appliedsolutions@appliedenergysystems.com.

