

CASE EXAMPLE

Fuel Safeties for Over 20 R&D Test Cells

Application: Safety, Test Equipment & Systems Control

ACS ROLE

ACS provided custom turnkey fuel delivery rigs to meet requirements for safe delivery of flammable fuels used in an engine test environment. ACS custom designed, fabricated, tested, and commissioned 23 fuel supply-train skids and provided facility upgrades.

Programming - ACS programmed PLC systems for the three test cells that were more complex and required enhanced capabilities.

Platform – Allen-Bradley Compact GuardLogix safety PLCs and PanelView Plus 6” HMI

Commissioning – On-site management of contractors during installation and construction phase. Verification of installed SIS systems.

Panel Build – Manufactured and tested (20) Pilz-based SIS panels
Manufactured and tested (3) Allen-Bradley SIS panels including programming.

Field Devices – SIL rated: Flow switches, natural gas and propane LEL (Lower Explosive Limit) sensors, gas pressure switches, flame detectors, valve position. Other devices: Coriolis flow meter, dual-seal pressure transducers, purge fan.



DESCRIPTION

A manufacturer of diesel engines had an increased need for testing with flammable fuels, which required upgrades to their test cells and facility to meet safety standards and codes. The client’s goals included providing a safe work environment for personnel, protecting assets & business interests, complying with legal & regulatory obligations, and a common safety response from cell to cell.

CHALLENGE

All cells needed to be compliant with the client’s internal standard for testing with natural gas and propane. Some cells were much more complex than others which required additional engineering and more capable controls. Scheduling also presented challenges; upgrades had to be completed in a short timeframe

KEY PROJECT FEATURES

Client Goals Met:

- ISA-84 compliant process safety system
- Commonality of test cell functional operation in response to fuel safeties events
- Reduced liability for client and natural gas industry

to avoid delaying future testing and scheduled around current testing. ACS worked with the client to sequence the work, based on testing schedules, program demand, and amount of work required in each cell.

ACS SOLUTION

ACS custom designed, fabricated, tested, and commissioned 23 fuel supply-train skids (natural gas and propane), each of which included double-block and bleed valves, pressure switches, flow meter, pressure regulator, venting, over-pressure protection, and pressure transducer.

Facility equipment upgrades included scavenge air system, SIS (Safety Instrumented System) controls, gas detection, fuel supply train and associated safeties, engine exhaust purge and explosion relief.