

Arthur Pierce **Senior Engineer, Kenexis**

American Institute of Chemical Engineers (AIChE)
2010-Present

Fields of Competence

Safety Instrumented Systems Engineering
Fire and Gas System Design
Layer of Protection Analysis (LOPA)
Safety Integrated Level (SIL) Selection
Safety Integrated Level (SIL) Verification
Safety Requirements Specification (SRS)
Quantitative Risk Assessment (QRA)
Fault Tree Analysis (FTA)
Dispersion Modeling

Experience Summary

Mr. Pierce is a Senior Engineer at Kenexis with experience in Fire and Gas Systems (FGS) and Safety Instrumented Systems (SIS). He is involved in risk-based studies in upstream oil & gas production, petroleum refining and specialty chemicals. Mr. Pierce is responsible for engineered safeguard design basis development and verification/validation projects. He is also specialized in performance-based FGS design including risk-based techniques for FGS integrity analysis and fire & gas detector mapping techniques.

Credentials

B.S.Ch.E, Chemical Engineering, The Ohio State University, 2014

ISA 84 SIS Expert – Safety Instrumented Systems Expert

Qualified on Safety Instrumented Systems – Front End Engineering Design Part 1 and Part 2

Completed Kenexis Fire and Gas System Design Training

Completed Kenexis Burner Management System Training

Affiliations

International Society of Automation (ISA)
Local Section Officer
2014-Present

Key Assignments

Focused Quantitative Risk Assessment (fQRA) on oil & gas gathering system to address risk of overpressure. Identified requirements for protection layers and Safety Instrumented Systems (SIS) in more than 10 gathering centers.

Performed SIL selection and verification studies on ammonia plants in Trinidad. Project responsibilities included development of Safety Instrumented Function (SIF) list, SIL selection using LOPA methodology for both existing and proposed systems, quantitative reliability analysis to verify achievement of SIL targets through the use of fault tree analysis (FTA), and developing the safety requirement specifications for the SIS. Systems analyzed include:

- Compressor Systems
- Ammonia Scrubber
- Boiler System
- Fired Heaters
- Primary Steam Methane Reformers
- Secondary Reformers
- Methanators
- Steam and Condensate Systems
- CO2 Absorption/Stripping Systems
- Glycol Drying Systems
- Refrigeration Unit
- Onshore Gas Processing Facilities

Participated in Fire & Gas System design and validation projects for numerous offshore facilities. These projects included both process and non-process areas, incorporating risk-based design for process areas. Projects include hazard identification, risk-based analysis of existing fire & gas systems, FGS SIL Assessment design of fire & gas system and, Fire & gas detector coverage mapping analysis.

- Offshore Oil & Gas Production
- Gas Treatment and Separations Plants
- Offshore Power Generation
- Offshore Water Injection Systems
- Offshore Building Fire and Gas Detection Systems

Performed Fire & Gas System Design for offshore Gas Processing Facility. This facility included Well

Head Platforms, Gas Treatment Platforms, Separations Platform, and indoor & outdoor non-process areas. This study consisted of a site survey, selection of performance targets, fire and gas detection mapping, and recommendations to meet selected performance targets.

Performed Fire & Gas System Design for an offshore oil platform. The facility included processing areas such as separations and gas treatment, as well as flare areas, pig launchers and receivers, glycol regeneration system, and utility areas. This study consisted of selection of performance targets, fire and gas detection mapping, and recommendations to meet selected performance targets.