





# Safety Sentine I<sup>TM</sup>

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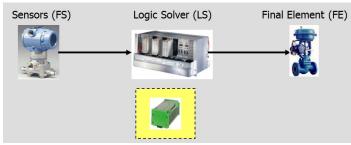


#### INTRODUCTION

**MCL Control** is aware of the importance of Functional Safety nowadays, protection of the people, the environment, and the property.

Numerous fatalities have occurred in processing plants in the near past due to the lack of awareness of the risks associated

with the processes and their impact on the surroundings.



To provide updated and competitive services and products related to this discipline, MCL Control keeps specializing and participating actively within safety regulations, standards, and best practices groups.

MCL Control offers products and services for either adapting or designing your Safety Instrumented System (SIS), in accordance with the ANSI / ISA-61511, IEC 61508, and IEC 61511 standards during its entire Life Cycle:

- Process hazard analysis (PHA) studies such as: HAZID, HAZOP, WHAT-IF, FMEA, FAULT TREE, among others.
- Consequence Analysis (AC), and Quantitative Risk Analysis (QRA), through the use of simulators recognized in the industry
- Studies to Determine the Safety Integrity Level (SIL) required of the Safety Instrumented Functions (SIF) of a SIS, through the use of techniques recognized in the industry, such as: Protection Layer

Start

Conceptual

Process Design

Process Hazard

Analysis and

Risk Assessmen

Apply Non-SIS

Protection Layers

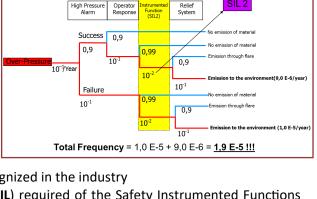
SIS

Required?

Requirements Given in ISA 84.01

Analysis (LOPA), Risk Graph, Matrix of Security Layers and Fault Trees, among others.

- Safety Requirements Specifications (SRS) of a SIS.
- SIL Verification Studies of Safety Instrumented Functions (SIF).
- Evaluation of Functional Safety prior to the start of operations of a plant.
- Safety Instrumented Systems (SIS) design and detail engineering, including SIS integration with any DCS, plant monitoring / SCADA System.
- SIFs Operational, and Maintenance displays (safe HMIs).
- SIS installation, commissioning, and Startup Acceptance Tests (SAT).



Define Target

SIL

Specification

SIS Conceptual

Design

SIS Detailed

Realization Phase

SIS Installation,

and Pre-startup

Pre-Startup Safety Review

(Assessment)

SIS Startup

Operation,

Maintenance

Periodic

unctional Tests

Modify of

Decommission

SIS?

Modify

Establish

Operating and

Maintenance

Procedures

Operation

Decommissioning

Phase

SIL 2





#### TRAINING COURSES

**MCL Control** provides online training courses, with qualified and certified personnel on the following topics:

- Functional Safety in process plants.
- Quantitative Risk Analysis (QRA).
- Location of Fire and Gas detectors.

#### **EXPERIENCE**

**MCL Control** has executed more than 200 projects associated with the topic of Functional Safety, hazard analysis and risk assessment since 1991, the staff has the experience, qualification and certification (Certified Functional Safety Experts - CFSE) required to carry out this type of study and has the most commonly used software tools with a recognized track record in the industry at an international level, thus ensuring the quality of its services.





#### **CONTACT INFO:**



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