

# Process Safety Services

Improving the safety of industrial processes has always been a major issue, but is now even higher on the agenda as it affects plant availability and asset utilization.



ISA Technical report TR84 and the international standards IEC-1508, IEC-61508 and IEC-61511 define safety issues during the lifecycle of an industrial plant. IEC-61508 'Functional Safety of Electrical/ Electronic/ Programmable Electronic Safety-related Systems' offers a well-structured approach to Safety-related issues and represents current internationally accepted practices. IEC-61508 distinguishes four discrete levels of risk reduction: the Safety Integrity Levels (SIL). SIL1 is the lowest and SIL4 the highest and most demanding level. The SIL expresses the performance that a given protection as a whole has to achieve. Instrumentation and safety equipment have to match the requirements for each particular SIL.

## Hint's Services during the Safety Lifecycle

Hint offers consultancy and auditing services for the safety systems used in industrial processes. We focus specifically on the validation of Instrumented Protective Systems, Safety Instrumented Systems (SIS) and Fire & Gas (F&G), complementing the safety related work of the users, vendors and contractors during the design phase and the operational period.

Hint provides services for all phases of the safety lifecycle. Predominantly we focus on the front and the backend.

For audits of Safety Instrumented Systems in the operational phase we have developed intelligent tools that permit the validation of the safety situation by comparing the actual state with the original design and SIL levels defined at the outset.

## Top Down Safety management workshop (TDSM)

This workshop informs users and contractors with the different safety standards applicable for the industry / plant. The program makes it clear that it is not sufficient to just look at the automation aspects. A wider vision is required including aspects such as, Cost of Ownership, and business risks. The workshop is stressing a "Top down" approach. Starting with the mission of the organization, technical and business risks are identified and quantified as Key Success Factors (KSF's) and Key Performance Indicators (KPI's).

The program relates these key factors to the applicable safety standards. Case histories are used to show how these risks can be limited and eliminated. The program ends with an overview of intelligent automation and IT solutions to reach adequate risk coverage and to monitor its effectiveness in real time during day to day operation.

### Hint's services throughout the safety lifecycle include:

Phase	Hint's Services
Conceptual Design	TDSM workshop
Hazop	Participate as team member
Risk reduction	IPF study, determine SIL levels
SIS design, programming, installation	By vendor of safety system
Prestartup safety review	Audit
Maintenance period	SIS Audit



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## SIS Audit

Industrial users are legally required to check periodically (e.g. annually) that the safety functions of the ASD (SIS) and F&G systems are functioning as engineered originally. These checks are made according to a shutdown schedule for the alarms and lists of the trip alarm settings. The result is documented in a test report. During the SIS Audit, Hint is analyzing these test reports. Bad acting circuits FTD (Fail to Danger) and FTS (Fail to Safe) trips are analyzed to determine whether these are random trips or whether a relation can be made to a specific measurement or situation. A subsequent step is the check, whether loops in question are still compliant with the IPF classification of the original design.

## Support Software

Integration, Data Exchange, Data Storage and Tracking and Tracing of safety related data play an important role in the design and ongoing support of industrial safety systems.

Hint is specialized in the visualization of Safety risk information. With Web Technology we can easily access field and static data from miscellaneous systems/databases and convert it into useful information, KPI's at multiple layers up to the management level of your organization are available anytime and where needed in the world.

Hint has provided safety related services to a number of major users in the Oil & Gas industries.

In line with the increasing demand for these services, Hint is strengthening her capability by training additional personnel in safety technology, to act as facilitator and secretary for IPF studies and to become proficient in the use of safety related analysis tools such as Shell's RRM and SIFPRO. To complement areas where we have no in-house competence we work with professionals outside our organization, who are prepared to complement a Hint team engaged in auditing your safety situation.

## Key features

- + Top Down Safety Management
- + SIS Audits
- + Web based monitoring of Safety Performance
- + Experienced personnel

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## Safety Lifecycle

