PIPESYSTEMCONSULT GMBH
HAZOP, SIL & LOPA REFERENCES

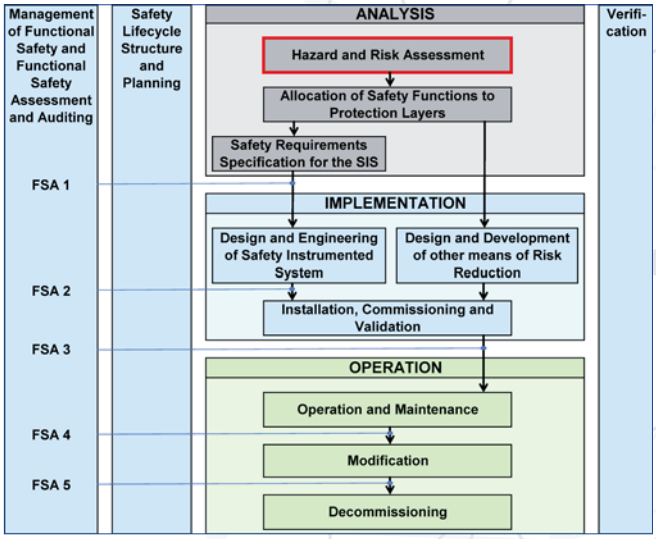
PipeSystemConsult GmbH (PSC) is an independent engineering company that provides flexible and cost-effective consulting services to clients in the pipeline, power generation and industrial energy sectors.

The company has over 35 years' international experience in engineering management and design. PSC specializes in implementation of Functional Safety Management in accordance with IEC 61511, including HAZOP, HAZID, LOPA, SIL, QRA, Functional Safety Assessment and Audit.

PSC has provided independent Chairman and Scribe services for over eighty HAZID, HAZOP (including HAZOP revalidation) and LOPA studies both nationally and internationally. PSC experts are certified according to IChemE and the Exida CFSE program.

The first step of the Safety Life Cycle according to IEC 61511 is a Hazard and Risk Assessment (HRA) to determine the risks associated with a particular plant or process. Level of analysis can range in complexity from 'What if' Checklist to HAZOP, FMEA, FTA up to QRA.

Following the HRA, risk reduction analysis of Safety Instrumented Functions (SIFs) is carried out via calibrated risk graph or LOPA.



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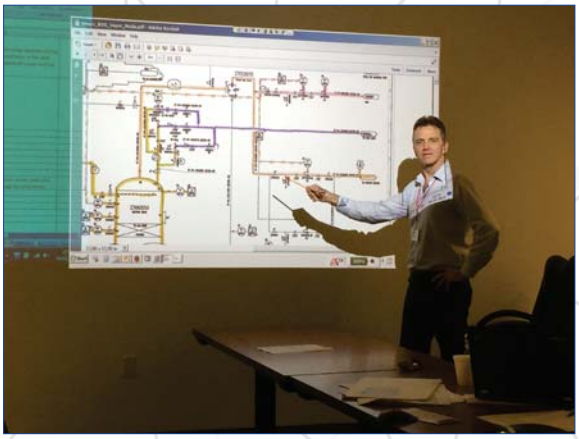
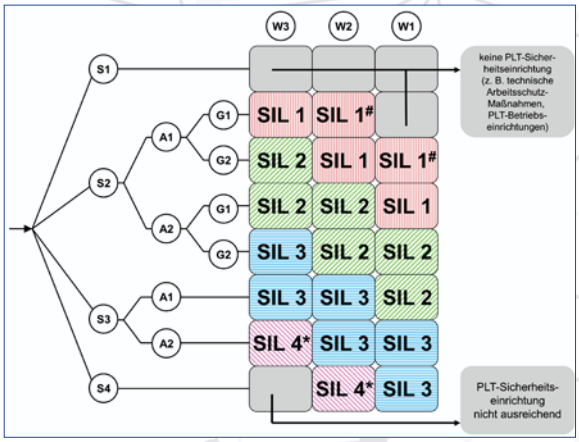
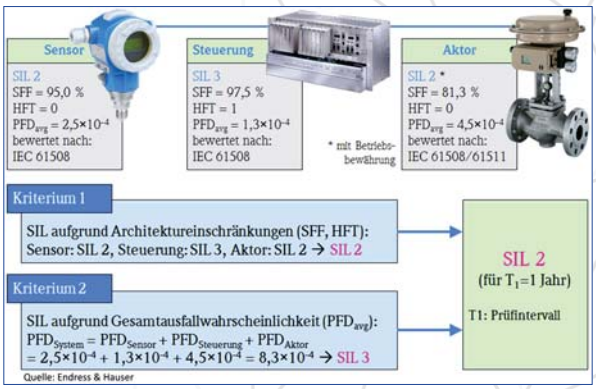
Below are listed some of the HRA's led by PSC over the last ten years:

Owner	HRA-Study
Gasunie, Germany	Over 15 HAZID/HAZOP/ SIL studies/updates for compressor stations and gas pipelines
ADCOP Pipeline Co., Abu Dhabi	Follow-up HAZOP for crude oil pipeline, pump stations and tank farm
Confidential	HAZOP Update, SIL Verification of legacy systems for a gas compressor station
Klaipėdos Nafta, Lithuania	HAZOP, LOPA, SIL Analysis for an LNG Reloading Station HAZOP, LOPA for FSRU
Net4Gas, Czech Republic	Over 10 HAZID/HAZOP/ SIL studies and updates for various gas pipelines and facilities
Petrom, Rumania	HAZOP of 34 crude oil collection manifolds
Gassco, Germany	HAZID, Risk Analysis of offshore gas heating system for Gas Receiving Facility
DLR, Germany	HAZID (PHA) of electricity supply, auxiliary systems of rocket test facility
BEP Bunde-Etzel Pipeline, Germany	HAZOP of gas pipeline and stations
Batangas LNG, Philippines	HAZID, QRA of planned LNG Regas Terminal







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