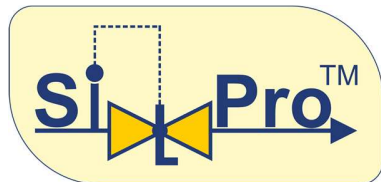


**‘ONION RINGS’ of
LAYERS OF PROTECTION**

SILPro™ – software for LOPA Studies



- ✓ Reduced errors with access to s/w database
- ✓ Faster calculations, quicker sessions
- ✓ Easier online access from anywhere, anytime
- ✓ Formatted and editable reports

‘Onion Rings’

Process control system:

Controls & associated (PCS) alarms

Process shut down system:

Trips & associated SD (PSS) actions.

Emergency shut down system: (ESD)

High reliability–no mechanical protection (HIPS)

Fire & Gas detection system:

F&G detection/action + Link with ESD system

Ultimate Safety System:

Back-up of essential ESD actions (USS)

**Process Hazard
Reviews**

HAZID

Hazard Identification Study is a brainstorming session to identify non-process hazards

HAZOP

Hazard Analysis and Operability Study is a brainstorming session to identify process hazards

LOPA for SIL

Layer of Protection Analysis is a semi-qualitative method to ensure mitigation of high severity - high frequency hazards scenarios to ALARP

TRAINING

HAZOP and LOPA

Training sessions are conducted at customers site. Pedagogical method includes workshops with industrial examples, mock sessions and hands-on software application



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