# Project Work

IEC 61511 Certification Program

This document will be the basis for the oral exam for FuSa Process Industry Expert level. The form must contain enough information to allow the examiner to ask focused technical questions. It's not necessary to attach or submit project evidence, reports, drawings, calculations, PHA worksheets, SRS extracts, proof-test records, or client documents. You can use anonymized descriptions where needed.

## 1. Project Overview

| | | | |
|---|---|---|---|
| Candidate Name<br>*(First and last name)* | | | |
| Project Title | | | |
| Project phase mainly discussed | ☐ FEED ☐ Detailed design ☐ SIS modification ☐ Operation/MOC ☐ Existing SIS review | | |
| Scope of candidate involvement | ☐ Lead ☐ Implemented ☐ Operated/Maintained | | |
| Process sector | ☐ Refining ☐ Chemical ☐ Petrochemical ☐ Oil & Gas ☐ Pharma<br>☐ LNG ☐ Other | | |
| Project period<br>*(start/end date)* | | Duration (in months) | |
| Country of implementation | | | |

| Process unit or facility under evaluation<br>*Describe the process unit, main equipment, hazardous materials or energy sources, relevant operating modes and why the SIS-related work was needed.* |
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| |

| Boundaries of the evaluation<br>*Define battery limits and interfaces included in the assessment such as upstream/downstream systems, utilities, package units, relief/flare systems, BPCS,* |
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| |

| Candidate's personal contribution<br>*State what you personally did, e.g. facilitated PHA, prepared SIL/LOPA, reviewed SRS, performed SIL verification, participated in validation, investigated* |
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## 2. Standards, rules and project criteria applied

| Reference / rule set | Used? | How it influenced the project |
|---|---|---|
| IEC 61511 series | ☐ Yes<br>☐ No | Lifecycle, hazard/risk assessment, SRS, design, validation, operation, modification |
| IEC 61508 / safety manuals | ☐ Yes<br>☐ No | *Device/systematic capability, failure data, architectural constraints* |
| Corporate/client functional safety procedure | ☐ Yes<br>☐ No | *Risk criteria, SIL determination rules, IPL crediting, bypass/MOC governance* |
| Regional/local regulation or sector guidance | ☐ Yes<br>☐ No | *Legal, authority, insurance, permitting or process-sector requirements* |
| Other standards / project criteria | ☐ Yes<br>☐ No | *Cyber/access rules, design specifications, operating philosophy, maintenance/test rules* |

## 3. Hazard identification and PHA execution

| Topic | Description |
|---|---|
| PHA Method | *Method used and why it was suitable (e.g. HAZOP, HAZID, What-if, FMEA, Bowtie, combined method)* |
| Basis information used during the study | *Type of information available to the team (PFD/P&ID maturity, C&E, philosophies, operating assumptions, vendor data, procedures)* |
| Team and competence coverage | *Disciplines represented and any competence gaps or absences relevant to the quality of hazard identification.* |
| Node/deviation or scenario structure | *How the process was divided and how deviations, causes, consequences and safeguards were developed.* |
| Safeguard screening | *How safeguards were judged effective, independent, auditable and available before being credited* |

### 4. Key hazardous scenarios

Present a maximum of 5 hazardous events related to the project

| ID | Hazardous event | Initiating cause(s) | Consequence | Safeguards considered | SIF involved? |
|---|---|---|---|---|---|
| HS-01 | | | | | ☐ Yes<br>☐ No |
| HS-02 | | | | | ☐ Yes<br>☐ No |
| HS-03 | | | | | ☐ Yes<br>☐ No |
| HS-04 | | | | | ☐ Yes<br>☐ No |
| HS-05 | | | | | ☐ Yes<br>☐ No |

## 5. SIL determination and initiating event frequency basis

| Topic | Description |
|---|---|
| SIL determination method | *Method used and why (e.g. LOPA, risk graph, calibrated risk matrix, FTA/ETA or company method)* |
| Risk criteria | *How tolerable risk, consequence severity and risk reduction target were defined or selected.* |
| Initiating event frequency basis | *Source and reasoning for IEFs (e.g. site history, generic failure data, equipment data, corporate database).* |
| IPL crediting | *Which protection layers were credited.* |
| Modifiers and assumptions | *Occupancy, ignition, vulnerability, enabling events, time at risk, conditional modifiers and common-cause assumptions.* |

## 6. SRS parameters

Brief key information of a maximum of 3 SRS parameters related to the project

| ID | Function | Safe state | PST / response time basis | Demand mode / rate | Proof-test strategy | Bypass/reset approach | Critical SRS assumption |
|---|---|---|---|---|---|---|---|
| SIF-01 | | | | | | | |
| SIF-02 | | | | | | | |
| SIF-03 | | | | | | | |

## 7. Architecture, independence and SIL verification summary

| Topic | Description |
|---|---|
| Architecture and voting | *Sensors, logic solver, final elements, voting, diagnostics, trip philosophy* |

| Topic | Description |
|---|---|
| HFT / SFF / route constraints | *How architectural constraints or route constraints were addressed for the required SIL* |
| SIL verification assumptions | *PFDavg/PFH assumptions, beta factor, diagnostics, repair time, proof-test coverage, mission time* |
| BPCS/SIS independence | *Any shared devices, independence measures, common-cause controls and segregation decisions* |
| Physical/electrical segregation | *Power, cabinets, marshalling, cabling, networks, environmental survivability, EMC* |
| Cyber/access control | *Access rights, configuration management, network segregation, remote access and change control.* |

## 8. Safety lifecycle implementation

| Lifecycle step | Candidate involvement | Description |
|---|---|---|
| Functional Safety Management | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | Responsibilities, competence, verification/validation planning, independence |
| Hazard and risk assessment | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | How PHA/SIL activities were planned, executed and controlled |
| Allocation and SIF definition | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | Why risk reduction was allocated to SIS or non-SIS layers |
| SRS development | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | How functional and integrity requirements were captured |
| Engineering design / verification | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | Design reviews, SIL verification and design assumptions |
| Application logic / software | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | Logic development, review, testing and change control |

| Lifecycle step | Candidate involvement | Description |
|---|---|---|
| Validation before operation | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | *How conformity to SRS was confirmed before hazardous operation.* |
| Operation and maintenance | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | *Proof testing, bypasses, trips, failures, repair and performance monitoring* |
| Management of Change | ☐ Lead<br>☐ Supported<br>☐ Reviewed<br>☐ Not involved | *How changes were assessed for impact on SIF, SIL target, SRS and validation.* |

## 9. Declaration

I hereby declare that all details given in this document are true and correct

Date

Applicant Signature