

ABB full lifecycle safety assured solutions for the process industries

Recent high profile incidents and accidents have highlighted the need to ensure that installed layers of protection have the right safety requirements specified and that these are met.

Minimising risks to people, the environment and the workplace

As operators improve their basis of safety as part of their process safety management obligations, there is an ever increasing need to develop an assured methodology that links the hazard analysis with the assured development of appropriate layers of protection. The process industries today are facing ever increasing demands to demonstrate that their operating risks to people, the environment and the workplace are minimised.

To achieve this requirement operators must:

- Design and build plants to appropriate technical standards and best practices
- Operate and maintain plants using appropriate safety and quality management systems
- Use competent resources throughout the design and operational lifecycle of the equipment in use

Delivery of the above will be via the company's safety management systems. Such systems will need to address corporate responsibility, development of a safe culture of work, implementation of a basis of safe operation and competency for staff at all levels within the organisation.

Safety Instrumented Systems (SIS)

When using SIS as part of the basis of safe operation, operators need to have systems and procedures in place that address the needs of process safety, functional safety, product safety and competency assurance. All four parameters are required to come together in the desire to reduce the operating risk to a minimum, or 'As Low as Reasonably Practicable' (ALARP) level.

Industry today is utilising the safety lifecycle models within IEC61508-61511 (see overleaf) to align the above requirements in terms of structure and deliverables as a means of demonstrating overall control and improvement. The challenge for the operators and how they discharge their responsibilities to the supply chain i.e. EPC's, is how the four key elements



can be brought together to increase confidence and ultimately assurance that the developed basis of safe operation is valid and appropriate.

How ABB can help

ABB offers unparalleled experience and expertise in assisting companies across each of the four key areas:

Process Safety Management

- Identifying and assessing risks
- Reducing risks to acceptable levels
- Regulatory compliance

Functional safety management

- Application of appropriate safety related technologies
- Compliance with standards - good practice for procedures, people and products

Product safety

- Certified SIL 3 capable products
- Performance guarantees
- Continual investment in product development

Competency assurance

- Knowledge, experience, training and qualifications of ABB engineers (TUV certified in FS)
- Involvement in industry groups and standards
- Assessment and training operating teams

ABB differentiates itself by providing seamless services throughout the full safety lifecycle. By aligning our services to the safety lifecycle(s) requirements, ABB can provide all, or specific requirements to match client needs:

Hazard and risk management

- SIL determination
- Process safety management systems

Power and productivity
for a better world™



- Behavioural safety and culture
- Process Hazard Review (PHR)
- Hazard studies (including HAZOP)
- Mechanical integrity assessment and asset life
- Computer Hazard and Operability Studies (CHazop)
- Hazardous area risk assessment and classification

Design and engineering

- Safety Instrumented System (SIS) delivery (ESD, alarms and fire and gas)
- SIL achievement
- SIS specification
- Detailed design - SIL 3 capable
- Competency assured TuV certified engineers
- TuV global certified safety centres
- IEC61508 / 61511 compliant functional safety management systems
- Comprehensive systems methodology and documentation
- Commissioning
- Validation
- Pressure relief design and calculations
- Civil and structural systems i.e. bunding and containment

Operations and maintenance

- Reliability and operations improvement
- Modifications, upgrade management
- Brownfield project delivery
- 24/7 service level agreements
- TUV certified service organisation
- Performance assurance
- Testing and repairs
- Operating and maintenance procedures

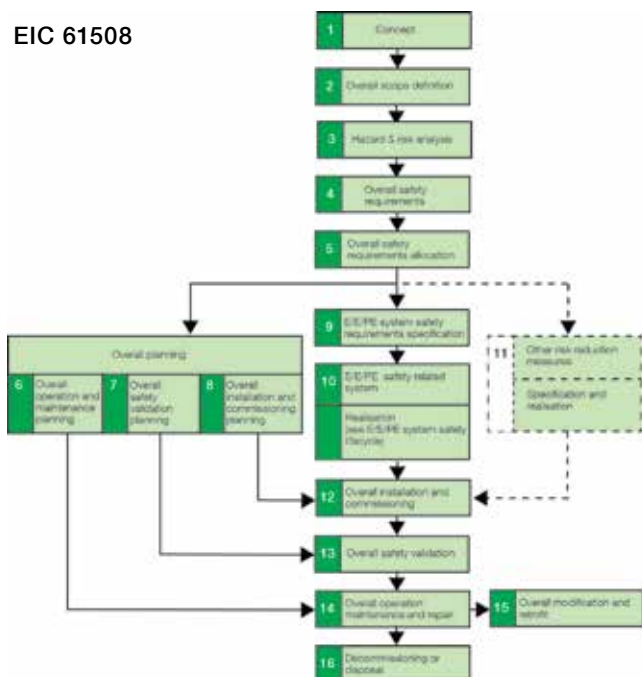
Benefits

By engaging with ABB we can provide the following benefits to both the business operator end users and the project EPC's as follows:

End users

- Assured complete safety solutions a single organisation
- For SIS systems, third party assessed and certified
- Meets 'ALARP' for the cost of safety

EIC 61508



- Stakeholder - shareholder confidence
- Meets corporate and regulatory expectations
- Basis of safety fully documented
- Best in class Process Safety Management (PSM) sustained

EPC's

- Assured complete safety solutions a single organisation
- Consistent global approach to design and installation of SIS
- Ease of contractual arrangements - less variability
- Confidence in meeting clients requirements
- Reputation and differentiation

Why ABB?

Harnessing ABB's know how, leading edge safety related products and certified competencies can provide assured solution to developing your basis of safe operation. ABB is focused on delivering results. Our strengths can be found in our people and their world-class experience, gained from providing the most appropriate solutions to world leading companies. These are supported by proven methodologies and the technology base of the ABB group. We are passionate about the service we provide and are totally committed to giving genuine value for money every step of the way. ABB's safety assured solution matches the whole of the safety lifecycle requirements.

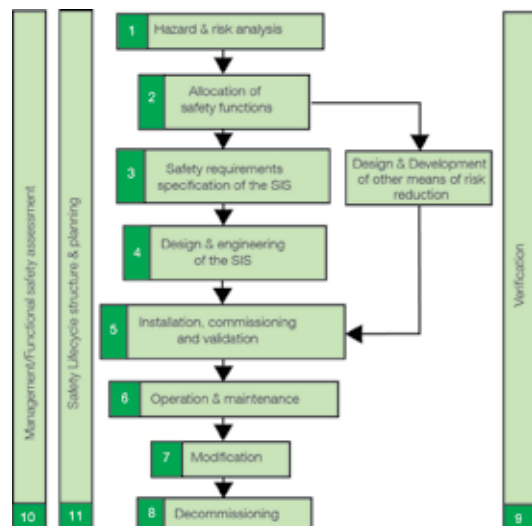
The ABB assurance:

- Meeting your regulatory and legal requirements
- Supporting your ability to demonstrate duty of care
- Facilitating your Stakeholder confidence
- Delivering 'Fit for purpose' technology, solutions and service support

Assured and certified products, services, delivery and execution.

For further information please contact:
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