IEC 61508 Certification
A First Hand Account

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What is really involved for a company seeking IEC 61508 certification? Moore Industries, the first US company certified to the standard, offers insight into this sophisticated certification process and shares their experience.

IEC 61508 – Why Now?

Moore Industries has always prided itself on its commitment to safety, incorporating internationally recognized certifications and standards into our lines of process instrumentation such as CENELEC/ATEX, NEC, CEC, FMEDA, ISO and many others. Obtaining IEC 61508 was a logical next step for us, but a considerable one. We first conducted significant research within our company and the existing market to determine if certification was an appropriate and achievable undertaking for us. Would it benefit our business? Are our customers ready to embrace this standard? Do we have the financial, technological and human resources to take on this challenge?

These questions had to be answered before certification would even be considered. An extensive market study ensued as formal discussions were held with our key personnel within the US, UK, Belgium, Australia, the Netherlands and others. In addition, extensive interviews were conducted with our current and potential base of customers. These were primarily end users in the chemical and petrochemical industries, system integrators as well as other companies that were considering the adaptation of IEC 61508. Based on the feedback received, we concluded that certification would be a viable option and would truly benefit our business.

The scope of IEC 61508 certification affects an entire organization. It was pertinent to have the support and commitment of everyone. We contracted with Eutech, a division of ABB, one of the largest industrial, energy and automation companies in the world, to run in-house educational seminars about the certification requirements and to start laying the groundwork to adapt a new safety culture. Moore Industries established a dedicated safety team within our company made up of a lead engineer, hired for his expertise in this field, and several in-house personnel already very familiar with our processes and procedures. We were careful to avoid total overhaul of our existing ISO 9001 process.

Moore Industries' Safety Team, comprised of a lead engineer, hired for his expertise in this field, and several in-house personnel with extensive knowledge and experience with the company's processes and procedures, discuss the CASS requirements.

Introduction to CASS

The framework used by third party certification companies to assess and certify organizations to IEC 61508 is called the Conformity Assessment of Safety-related Systems (CASS). Eutech provided us with a CASS guide. This guide offers "identifiable deliverables" termed Targets of Evaluation (TOEs) that are associated with the applicable causes for the specific assessment within IEC 61508. It was necessary to meet the criteria of four tables within this guide. Eutech oversaw our step by step progress and advised us on any modifications that were necessary.

The first table in the CASS Guide uses 18 TOEs to guide the assessor in the evaluation of a Functional Safety Capability Assessment (FSCA). The FSCA relates strictly to the assessment processes employed by a facility, not the individual components, products or specific operation and maintenance systems. This assessment determines if the company has the necessary safety infrastructure (quality system such as ISO 9001) to support the safety lifecycle. The FSCA must be successful before the remaining assessments will be performed.

The second table in the CASS Guide uses 21 TOEs to guide the assessor in the evaluation of IEC 61508, part one, "General Requirements." This assessment pertains to system integrators that are responsible for the overall safety function. Systems integrators may acquire components from suppliers to develop the overall safety function as a Safety Instrumented System (SIS).

The third table in the CASS Guide uses 30 TOEs to guide the assessor in the evaluation of IEC 61508, part 2 "Requirements for Electrical/Electronic/Programmable Electronic Systems," and pertains to component manufacturers of Safety Instrumented Systems.

The forth table in the CASS Guide uses 45 TOEs to guide the assessor in the evaluation of IEC 61508, part three, "Software Requirements." This assessment pertains to component manufacturers of Safety Instrumented Systems with software residing in the electrical, electronic or programmable electronic system or software as a separate component in a SIS. Software cannot be assigned a reliability number, since software faults (miss-calculates) and does not randomly fail. Software faults are systematic failures resulting from the software development processes.

Joseph Hage (left), Moore Industries' Vice President of Engineering is congratulated by Sira representative, Eric Gilchrist (right) on being the first US company to obtain IEC 61508 certification for instrumentation hardware design.

Making the Grade

Sira, a leading conformity assessment services company in the UK conducted a three day evaluation of our company's new safety processes based solely on the standard. Our design, specification, manufacturing, quality assurance, personnel competency, management and technologies were also closely examined and it was determined that we successfully met the CASS requirements. In November, 2001, Moore Industries obtained IEC 61508 safety certification to design and manufacture process instrumentation hardware for safety related applications in high risk industries.

Now that we have the certified organization to develop products in compliance with IEC 61508, our next step is to produce products based on this standard. We have initiated re-appraisals and re-development programs on specific products destined to be fully IEC 61508 compliant. These will be available in the coming months.