FAQs for DOE-STD-1195-2011

Q1: If the BPCS is used as an IPL, should it be treated as SS system? Chapter IV of DSA lists only SC, SS and DIDs. Needs clarification.

A: The BPCS is generally not used as an IPL for SS functions. The BPCS can only be credited as one IPL no matter how many SS SIS loops are involved. When a BPCS function is credited as an IPL to reduce the Safety Integrity Level (SIL) of an instrumented safety significant function under DOE-STD-1195-2011, it is acting as a DID function. The BPCS function shall be maintained in a maintenance/ surveillance program and shall have a limiting condition of operation (LCO).

Q2: DOE-STD-1195-2011 is using a modified ISA 84.00.01-2004 methodology. Is that a deviation to ISA 84? If yes, do we need an approval of DOE field office? Which portion of ISA 84.00.01-2004 we must comply and which part we need to take equivalency approval from DOE Field Office?

A: No approval for the deviation from ISA 84.00.01-2004 is required. ISA 84.00.01-2004 is meant for process industry applications. DOE is using DOE-STD-1195-2011, which was developed using a modified application of ISA 84.00.01-2004, for nonreactor nuclear applications.

ISA 84.00.01-2004, however, is used along with DOE-STD-1195-2011 for specific design guidance. To mention a few deviations from ISA 84.00.01-2004:

- The selection of components using ASME NQA-1 in lieu of certification through IEC 61508 or by ISA 84.00.01 defined 'Prior Use'. The use of ASME NQA-1 versus IEC 61508 as specified by DOE-STD-1195-2011 is not a deviation to ISA 84.00.01-2004. This is considered an equivalency which DOE as the Authority Having Jurisdiction (AHJ) established through DOE-STD-1195-2011.
- SIL determination methodology is not specified in the ISA standard. SIL determination methodology is left up to the owner operator to establish with the understanding that the Authority Having Jurisdiction (AHJ) would have approval of that methodology. In this case, DOE has provided the SIL determination methodology within DOE-STD-1195-2011.

Q3: "Fault tolerance with Prior Use" term in ISA-84 (Clause 11.5.3) requires meeting a few specific requirements. How do we comply?

A: Crediting prior use for DOE application can be based on field data and engineering judgment. For example, SOVs and MODs are widely used in DOE facilities for various applications. Using available data and conservative assumptions, one can take credit for 'prior use' with respect to the fault tolerance requirements of the ISA standard. Documentation for such a conclusion should be maintained and retrievable. Since the SIL calculations are maintained over the life of its operations, any future failures could be used for adjusting the assumptions, such as, maintenance frequency, etc.

ISA 84.00.01 'Prior Use' evaluation involves gathering information concerning the component performance in similar safety and/or non-safety applications for which the component is planned to be installed. 'Prior Use' demonstrates the functionality and integrity of the installed component, including the process interfaces, full device boundary, communications, and utilities. The 'Prior Use' (performance history) evaluation may include bench or field-testing, operation in control (non-safety) applications, failure tracking and analysis, and/or maintenance record review. The benefit of using owner/operator installed field data/experience is that it encompasses both hardware failures and systematic failures that resulted from owner/operator maintenance and inspection programs.