

## ASME NQA-1 Applied to Software Used at DOE Facilities

### Brief Course Description:

Software impacts nearly every aspect of a nuclear facility. Adequate controls must be in place to assure the safety and health of personnel and the public and the effective and efficient operation of facility equipment. To assure such controls are in place regulations, standards, and guidance need to be applied to the acquisition, development, operation, maintenance and retirement of software. This three-day course will examine the specific regulations, standards and guidance applicable to software used at Department of Energy nuclear facilities.

The course begins with a discussion of the DOE requirements (DOE O 414.1D) and guidance (DOE G 414.1-4) related to software and an overview of the structure of ASME NQA-1 followed with a close review of how NQA-1 applies to software. With a clear understanding of NQA-1 as it applies to software the course continues with a discussion of standards and guidelines that may be used to implement an effective software quality assurance program. The course finishes with a discussion of how to audit and assess software related projects as well as what to expect if you are audited. Special topics such as commercial grade dedication of software used in design analysis and software QA controls applied in today's agile software development environments.

### Key Topics Covered:

- Why standards are needed DOE
- Software used within DOE and the evolution of software controls within the DOE Overview of standards and guidance for software
- Overview of NQA-1
- Relationship between DOE Order 414.1D and ASME NQA-1
- Implementing Standards and Guidelines for Software
- Applying NQA-1 and DOE G 414.1-4 to safety and non-safety software
- Assessing and auditing software

### Who Should Attend:

Design engineers, software engineers, quality engineers, regulators, procurement personnel, program managers, and auditors.

### Prerequisites:

All participants are expected to bring a copy of 1) ASME-NQA-1-2008/2009 or later edition, 2) DOE O 414.1D, Quality Assurance, and 3) DOE G 414-1.4, Safety Software Guide for use with 10 CFR 830 Subpart A, *Quality Assurance Requirements*, and DOE O 414.1C, *Quality Assurance*.

**Course Fee:** \$1,295 price for up to 12 students.

**Date(s):** December 10-12, 2019, 8:30 AM to 5 PM

**Course Location:** ProcessQM LLC, 200 DP Road, Suite A, Los Alamos, NM 87544

**Instructor(s):** Nancy Kyle is a Partner and Principal Consultant of Theseus Professional Services and has over thirty years of experience in government and commercial nuclear facilities with emphasis on Software Quality. Nancy has extensive experience developing, implementing and assessing programs and processes compliant with 10 CFR 50 Appendix B with ASME NQA-1; and 10 CFR 830 Appendix A with DOE O414.1C/D, and DOE RW-0333P.

Nancy has performed numerous assessments of quality assurance program compliance throughout the Department of Energy Complex and commercial nuclear industry as well as performing supplier qualification audits for multiple DOE projects. Nancy has assisted many clients in their efforts to establish or enhance their institutional software programs and processes.

She is a member and former Secretary of the ASME NQA-1 Subcommittee on Software Quality Assurance, and a certified NQA-1 Lead Auditor. She received her Bachelor of Science degree in Computer Science from Missouri State University.