General Contractor Requirements:

1. The provisions of this Requirements Document apply to DOE software or software customized for DOE use, proposed for use, under development, or being maintained and used, whether that software was developed in-house, licensed from a commercial vendor for customized use, obtained from another organization, or otherwise acquired shall be subjected to formal quality assurance. The type of software includes, but is not limited to:
   a) administrative/business-oriented software,
   b) scientific/engineering software within the context of considerations identified in number 2,
   c) manufacturing-oriented software, and
   d) process control (e.g., Programmable Logic Control instructions).

2. The provisions of this Requirements Document are not mandatory for basic scientific research and development activities conducted to support the Office of Science mission unless those activities are governed by the requirements in 10 CFR Part 830. However, as directed, contractor line management is encouraged to consider all or part of the requirements in meeting its responsibilities to ensure the quality of the software developed for basic research. Business systems that support basic research are not exempted from the Requirements Document provisions.

3. The contractor must develop, document, and implement an SQA program for projects under its contract. Each SQA program will consist of an identified focal point of contact, defined authorities, policies, procedures, training, adopted standards, and conventions tailored to local needs. Each program will treat SQA initiatives appropriately, commensurate with their size, complexity, cost, degree of external impact, degree of customization, functions performed, and other factors important to the site's management.

4. The contractor must ensure all software, which is owned or maintained by DOE, is subjected to a degree of formal SQA commensurate with the safety, security, and risk involved in developing and using the software. This approach allows all software, including that which may be categorized as "research and development", to be assessed for and receive an appropriate and commensurate amount of SQA.

5. The contractor must ensure the SQA processes and procedures are software product and project lifecycle based; documented to provide a baseline for auditing; and applied in a consistent, repeatable, and predictable manner. The contractor must ensure the adequacy of selected processes and practices, as well as their oversight.

6. The contractor must develop project SQA plans and address testing (e.g., unit, integration, system, acceptance), verification and validation, structured walkthroughs, peer reviews, inspections, audits and any other requirements specified for an application (e.g., by contract). The contractor must ensure that each plan is commensurate with the level of the size, complexity and scope of the software project. As appropriate, a standard SQA plan may be adopted and/or adapted for subsequent projects within a program.

7. The contractor must conduct systematic reviews to ensure that the requirements of this directive and DOE O 414.1A, QUALITY ASSURANCE, are met and determine the need to update its own SQA program. Relative to software, these reviews should also ensure that appropriate safety and security controls are in place.
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<th>place, are effective, and reflect currently accepted industry practices.</th>
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<td>8. The contractor must ensure the adequacy of training programs to meet current and future personnel skill needs in the areas of SQA, software engineering, and software user training.</td>
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<td>9. The contractor must ensure the integration of the SQA program planning process with DOE strategic planning, Safety Management System, and budget process, as appropriate, to ensure that SQA program decisions are made, adequately funded, and executed to support DOE organizational and site missions and priorities.</td>
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