DOE O 414.1E Quality Assurance (Approved 12-18-2024)

NOTE: please note that the important part for all of us doesn't begin until the Contractor Requirements Document, page 34

0.1. PURPOSE

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.1. PURPOSE.	**0.1. PURPOSE.**						
0.1.a. To ensure that Department of Energy (DOE), including National Nuclear Security Administration (NNSA), products and services meet or exceed customers' requirements and expectations.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.1.b. To achieve quality for all work based upon the following principles: **0.1.b.(1) All work, as defined in this Order, is conducted through an integrated and effective management system;** **0.1.b.(2) Management support for planning, organization, resources, direction, and control is essential to quality assurance (QA);** **0.1.b.(3) Performance and quality improvement require thorough, rigorous assessments and effective corrective actions;** **0.1.b.(4) All personnel are responsible for**	**0.1. To establish an integrated Quality Assurance Program (QAP) that assures:** **0.1.a. controls for the conduct of work,** **0.1.b. requirements are met, and;** **0.1.c. achievement of organizational mission needs.**	N/A – Does not contain requirements applicable to contractors					

achieving and maintaining quality; and **0.1.b.(5) Risks and adverse mission impacts associated with work processes are minimized while maximizing reliability and performance of work products.**							
0.1.c. To establish additional process-specific quality requirements to be implemented under a Quality Assurance Program (QAP) for the control of suspect/counterfeit items (S/CIs), and nuclear safety software as defined in this Order.	(removed)	N/A – content does not exist in DOE O 414.1E					

0.2. CANCELS/SUPERSEDES.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.2. CANCELLATION.	**0.2. CANCELS/SUPERSEDES.**						
0.2. DOE O 414.1D **AdminChg 1**, *Quality Assurance*, **dated 5-8-13.** 0.2. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that	0.2. DOE O 414.1D **Chg. 2 (LtdChg),** *Quality Assurance*, **dated 9-15-20.** 0.2. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

are no longer applicable or substitute a new set of requirements.	are no longer applicable or substitute a new set of requirements.						

0.3. APPLICABILITY.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.3. APPLICABILITY.	**0.3. APPLICABILITY.**						
0.3.a. Departmental Applicability. Except for the equivalencies and exemptions in paragraph 3.c., this Order applies to all Departmental elements, and their associated field element.1 0.3.a.1. Operations offices, service centers, site offices, area offices, field offices, government-owned government-operated facilities, and regional offices of federally staffed laboratories that report directly to a DOE Headquarters office.	0.3.a. Departmental Applicability. Except for the equivalencies and exemptions in paragraphs 3.c. and 3.d., this Order applies to all Departmental elements, and their associated field element.1 0.3.a.1 Operations offices, service centers, site offices, area offices, field offices, government-owned government-operated facilities, and regional offices of federally-staffed laboratories that report directly to a DOE Headquarters office	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.a.(1) The Administrator of NNSA must assure that NNSA employees comply with their **respective** responsibilities under this directive. Nothing in this directive will be construed to interfere with the NNSA Administrator's authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration-specific policies, unless disapproved by the Secretary.	0.3.a. The Administrator of the National Nuclear Security Administration (NNSA) must ensure that NNSA employees comply with their responsibilities under this directive. Nothing in this directive will be construed to interfere with the NNSA Administrator's authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration-specific policies, unless disapproved by the Secretary.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

0.3.a.(2) Except for the equivalencies and exemptions in paragraph 3.c., this Order applies to all work conducted by or for DOE, **including work for nuclear and non-nuclear facilities.**	0.3.a.(2) Except for the equivalencies and exemptions in paragraph 3.c., this Order applies to all work conducted by or for DOE.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.a.(3) Except for the equivalencies and exemptions in paragraph 3.c., applicable requirements of the CRD set forth in this Order apply to government-owned government-operated (GOGO) facilities and federally staffed laboratories.	0.3.a.(3) Except for the equivalencies and exemptions in paragraph 3.c., applicable requirements of the CRD set forth in this Order apply to government-owned government-operated (GOGO) facilities and federally staffed laboratories.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.b. DOE Contractors. Except for the equivalencies and exemptions in paragraph 3.c., the CRD sets forth requirements of this Order that will apply to contracts that include the CRD.	0.3.b. DOE Contractors. Except for the equivalencies and exemptions in paragraph 3.c., the CRD sets forth requirements of this Order that will apply to contracts that include the CRD.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.b. Except for the equivalencies and exemptions in paragraph 3.c., this CRD must be included in contracts for the management or operation of a DOE-owned or -leased **facility (i.e., those contracts that include the clause at 48 C.F.R. (DEAR) 970.5204-2, laws, regulations and DOE directives)** that require or involve responsibility for work that affects or may affect DOE sites, facilities, programs or activities (including work that may take place outside the physical boundaries of a DOE facility, such as design or analytical services). For all other contracts involving or requiring	0.3.b. Except for the equivalencies and exemptions in paragraph 3.c., this CRD must be included in contracts for the management or operation of DOE-owned or -leased **areas or locations or other areas or locations controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor (i.e., those contracts that include the clause at 48 C.F.R. (DEAR) 970.5204-2, laws, regulations and DOE directives)** and that require or involve responsibility for work that affects or may affect DOE sites, facilities, programs or	N/A – Does not contain requirements applicable to contractors					

this type of work, the applicable requirements set forth in the CRD must be included in the contract terms and conditions.	activities (including work that may take place outside the physical boundaries of a DOE facility, such as design or analytical services). For all other contracts involving or requiring this type of work, the applicable requirements set forth in the CRD must be included in the contract terms and conditions.						
0.3.c. Equivalencies and Exemptions for DOE O 414.1D. Any exemption or equivalency to this Order affecting nuclear facilities requires concurrence from the appropriate Central Technical Authority (CTA) per DOE O 410.1, *Central Technical Authority Responsibilities Regarding Nuclear Safety Requirements*, current version.	0.3.c. Equivalencies/Exemptions for DOE O 414.1E. Any exemption or equivalency to this Order affecting nuclear facilities requires concurrence from the appropriate Central Technical Authority (CTA) per DOE O 410.1, *Central Technical Authority Responsibilities Regarding Nuclear Safety Requirements*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.c.(1) Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 United States Code (USC) sections 2406 and 2511 and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.	0.3.c.(1) Equivalency. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 United States Code (USC) sections 2406 and 2511 and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Directive for activities under the Director's cognizance, as deemed appropriate.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.3.c.(2) Exemption. Consistent with Secretarial Delegation Order Number 00-033.00B to the Administrator and Chief Executive Office of the Bonneville Power Administration (BPA), this Order does not apply to BPA.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.3.c.(3) Exemption. Activities and facilities subject to regulation by the Nuclear Regulatory Commission (NRC) are exempt from the requirements of this Order. Requirements in this Order that overlap or duplicate the	0.3.c.(2) Exemption. Activities and facilities subject to regulation by the Nuclear Regulatory Commission (NRC) are exempt from the requirements of this Order. Requirements in this Order that overlap or duplicate the	N/A – No material changes to language or intent; Does					

requirements of the NRC do not apply to facilities or activities (including design, construction, operation, deactivation and decommissioning) that are subject to an NRC license (including construction authorization) and related NRC regulatory authority. Other requirements in this Order may be applied to the extent determined appropriate by the responsible Program Office.	requirements of the NRC do not apply to facilities or activities (including design, construction, operation, deactivation and decommissioning) that are subject to a NRC license (including construction authorization) and related NRC regulatory authority. Other requirements in this Order may be applied to the extent determined appropriate by the responsible Program Office.	not contain requirements applicable to contractors					
(none)	**0.3.d. Financial Assistance. This Order does not apply to Federal oversight of financial assistance awards.**	N/A – Does not contain requirements applicable to contractors					

0.4. REQUIREMENTS.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.4. REQUIREMENTS.	**0.4. REQUIREMENTS.**						
0.4.a. Quality Assurance Program Development and Implementation.	0.4.a. Quality Management System Development and Implementation.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

0.4.a. Each Departmental element and associated field element(s) must identify and assign a **senior manager** to have responsibility, authority, and accountability to ensure the development, implementation, assessment, maintenance, and improvement of the **QAP**.	0.4.a. Each Departmental element and associated field element(s) must identify and assign an **individual within their organization** to have responsibility, authority, and accountability for QAP development, implementation, assessment, maintenance, and improvement.	N/A – Does not contain requirements applicable to contractors					
0.4.a. **Using a graded approach**, the organization must develop a QAP and implement the approved QAP.	0.4.a. The organization must develop a QAP **and its Quality Assurance Program Description (QAPD), and then implement the approved QAP.** **0.4.a. The QAP must implement the QA requirements found in Attachment 2 for all work and all facilities.**	N/A – Does not contain requirements applicable to contractors					
0.4.a. The QAP must do the following: 0.4.a.(1) **Describe the graded approach used in the QAP.**	0.4.a. The QAP, **as documented in the QAPD**, must: 0.4.a.(1) **Apply the Graded Approach: Where appropriate, a graded approach must be used to implement the requirements of the QAP.** 0.4.a.(1)(a) **The implementation of a graded approach is fundamental to a quality assurance program because it ensures that resources are allocated, and efforts are focused in proportion to the risks associated with a product, process, or project.** 0.4.a.(1)(b) **Graded approach means the process of ensuring that the level of analysis, documentation, and actions used to comply with a requirement are commensurate with:** **0.4.a.(1)(b)1 the relative importance to safety, safeguards, and security;** **0.4.a.(1)(b)2 the magnitude of any hazard involved;** **0.4.a.(1)(b)3 the life-cycle stage of a facility;**	N/A – Does not contain requirements applicable to contractors					

	0.4.a.(1)(b)4 the programmatic mission of a facility; **0.4.a.(1)(b)5 the particular characteristics of a facility;** **0.4.a.(1)(b)6 the relative importance to radiological and nonradiological hazards; and,** **0.4.a.(1)(b)7 any other relevant factors. (10 C.F.R. § 830.3)** 0.4.a.(1)(c) **The basis of the graded approach must be documented for each applicable quality assurance requirement of this Order, and be submitted to DOE as part of the QAPD. The graded approach must not be used to negate any applicable requirements.**						
0.4.a.(2) Implement QA criteria as defined in Attachment 2, **as well as the requirements in Attachment 3 for all facilities, and for nuclear facilities, the requirements in Attachment 4.** 0.4.a.(2) **Note: This requires that all software meet applicable QA requirements in Attachment 2, using a graded approach.** 0.4.a.(2)(a) **Describe how the criteria/requirements are met, using the documented graded approach.**	0.4.a.(2) The QAPD must describe how the requirements in Attachment 2 are met.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.4.a.(2)(b) Flow down the applicable QA requirements and responsibilities throughout all levels of the **organization**,	0.4.a.(3) The applicable QA requirements and responsibilities must be flowed down throughout all levels of the **Departmental element and associated field office**.	N/A – Does not contain requirements applicable to contractors					
0.4.a.(2)(c) **Use** appropriate national or international consensus standards in whole or in part, **consistent with regulatory requirements and Secretarial Officer**	0.4.a.(4) **Document the selection of** appropriate national or international voluntary consensus standard, or other standards.	N/A – Does not contain requirements					

direction.		applicable to contractors					
0.4.a.(2)(d) **Clearly identify which standards, or parts of the standards, are used.**	0.4.a.(4)(a) **The necessary level of detail from the standard(s) must be described during development of the QAP to achieve quality consistent with contractual and regulatory requirements, and Secretarial Officer direction.**	N/A – Does not contain requirements applicable to contractors					
0.4.a.(2)(c) When standards do not fully address these requirements, the gaps must be addressed in the QAP.	0.4.a.(4)(b) Gaps between the selected consensus standard(s) and Attachment 2 must be addressed within the QAPD.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.4.a.(2)(c) **Examples of currently acceptable standards include:** **0.4.a.(2)(c)1 ASME NQA-1-2008 with the NQA-1a-2009 addenda, Quality Assurance Requirements for Nuclear Facility Applications;** **0.4.a.(2)(c)2 ANSI/ISO/ASQ Q9001-2008, Quality Management System-Requirements; and,** **0.4.a.(2)(c)3 ANSI/ASQ Z 1.13-1999, Quality Guidelines for Research.**	0.4.a.(4)(c) **For Hazard Category 1, 2, and 3 nuclear facilities, ASME NQA-1 (NQA-1-2008 with the NQA-1a-2009 addenda or later version) is the preferred standard for use as the basis of the QAP with appropriate gaps (e.g., software and work control) addressed. Other voluntary consensus standards may be used upon approval by the DOE QA Approval Authority.**	N/A – Does not contain requirements applicable to contractors					
0.4.b. Quality Assurance Program Approval and Changes.	0.4.b. Quality Management System Approval and Changes.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

0.4.b. Each Departmental element and associated field element(s) must: 0.4.b.(1) **Submit a QAP** to the designated DOE approval authority.	0.4.b. Each Departmental element and associated field element(s) must: 0.4.b.(1) **Obtain QAPD approval** by the designated DOE QA Approval Authority.	N/A – Does not contain requirements applicable to contractors					
0.4.a.(2)(b) Flow down the applicable QA requirements and responsibilities throughout all levels of the **organization**,	0.4.b.(1)(a) **The QAPD must adequately prescribe the flow down of quality requirements to working level processes (e.g., procedures, instructions, or any other similar term used in the implementing documents.)**	N/A – Does not contain requirements applicable to contractors					
0.4.a.(2)(c) **Use** appropriate national or international consensus standards in whole or in part, **consistent with regulatory requirements and Secretarial Officer direction.**	0.4.b.(1)(b) **The selection of the voluntary consensus standard(s) used to develop the working level processes of the QAP must be described.**	N/A – Does not contain requirements applicable to contractors					
0.4.b.(2) Review the QAP annually, **or on a periodic basis defined in the QAP**, and update the QAP, as needed. Submit a summary of the **review** of the QAP and, if necessary, also submit the modified **QAP** to the DOE approval authority. Editorial changes to the QAP, that do not reduce or change commitments, do not require approval.	0.4.b.(2) Review the QAP annually and update as needed. Submit a summary of the **annual review** of the QAP and, if necessary, also submit the modified **QAPD** to the DOE QA Approval Authority. Editorial changes, that do not reduce or change provisions of the QAP or QAPD, do not require approval.	N/A – Does not contain requirements applicable to contractors					
(none)	**0.4.b.(3) Implement the QAP as approved.**	N/A – Does not contain requirements applicable to contractors					
0.4.b.(3) Regard the QAP as approved 90 calendar days after receipt by the approval authority, unless approved or rejected at an earlier date.	0.4.b.(4) Regard the QAP as approved 90 calendar days after receipt by the DOE QA Approval Authority, unless approved or rejected at an earlier date.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

0.4.c. Federal Technical Capability and Qualifications. Qualification for the functional areas identified in paragraphs 4.c.(1) and (2) are achieved as defined in DOE O 426.1, *Department of Energy Federal Technical Capabilities*, current version.	0.4.c. Federal Technical Capability and Qualifications. Qualification for the functional areas identified in paragraphs 4.c.(1) and (2) must be achieved as provided in DOE O 426.1, *Department of Energy Federal Technical Capabilities*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.4.c.(1) Federal personnel directly responsible for the oversight of quality requirements governing defense nuclear facilities must be qualified in accordance with the DOE Federal Technical Capability Program (See DOE O 426.1, current version, for specific requirements. See DOE-STD-1150-2013, *Quality Assurance Functional Area Qualification Standard*, or latest revision, for other acceptable methods).	0.4.c.(1) Federal personnel directly responsible for the oversight of quality requirements governing defense nuclear facilities must be qualified in accordance with the DOE Federal Technical Capability Program (See DOE O 426.1, current version, for specific requirements. See DOE-STD-1150-2013, Quality Assurance Functional Area Qualification Standard, or latest revision, for other acceptable methods).	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.4.c.(2) Federal personnel directly responsible for oversight of **safety software** quality assurance (**SSQA**) activities of defense nuclear facilities must be qualified **in SSQA** in accordance with the DOE Federal Technical Capability Program (See DOE O 426.1, current version, for specific requirements. See DOE-STD-1172-2011, *Safety Software Quality Assurance Functional Area Qualification Standard*, or latest revision, for other acceptable methods).	0.4.c.(2) Federal personnel directly responsible for oversight of **software** quality assurance (**SQA**) activities of defense nuclear facilities must be qualified in accordance with the DOE Federal Technical Capability Program (See DOE O 426.1, current version, for specific requirements. See DOE-STD-1172-2011, Safety Software Quality Assurance Functional Area Qualification Standard, or latest revision, for other acceptable methods).	N/A – Does not contain requirements applicable to contractors					
0.4.c.(2) Note: Personnel training and qualification requirements for weapons quality assurance are contained in the NNSA Defense Programs (NA-10) Weapons Quality Assurance Procedures Manual (WQAPM), which includes requirements for the use of DOE-STD-1025-2008, *Weapons Quality Assurance* (WQA) *Qualification Standard* (FAQS).	(removed)	N/A – content does not exist in DOE O 414.1E					

(none)	0.4.d. Review and Approval of Contractor Quality Assurance Program. The designated DOE QA Approval Authority must identify the personnel responsible for conducting the review of a contractor's QAP. The personnel responsible for conducting the review of a contractor's QAP must: 0.4.d.(1) When submitted by the contractor per the requirements of Attachment 1, Section 2. 0.4.d.(1)(a) Ensure that the QAPD adequately prescribes the flow down of the Attachment 2 requirements to working level processes. 0.4.d.(1)(b) Ensure an appropriate national or international voluntary consensus standard or portions of standards are selected as the basis for the program. 0.4.d.(1)(b) 1 Gaps between the selected consensus standard(s) and Attachment 2 must be addressed within the QAPD. 0.4.d.(1)(b) 2 For Hazard Category 1, 2, and 3 nuclear facilities, ASME NQA-1 (NQA-1-2008 with the NQA-1a-2009 addenda or later version) is the preferred standard for use as the basis of the QAP with appropriate gaps (e.g., software and work control) addressed. Other voluntary consensus standards may be used upon approval by the DOE QA Approval Authority. 0.4.d.(2) Document the results of the review including any programmatic gaps. 0.4.d.(3) If the review results and identified programmatic gaps preclude QAP approval, direct the contractor to address the issues preventing approval. Upon correction and resubmittal, review the contractor QAP per section 4.d.(1).	N/A – Does not contain requirements applicable to contractors					

	0.4.d.(4) Following a satisfactory review, submit the review documentation to the DOE QA Approval Authority for final approval. Formally document the approval and issue to the contractor.						

0.5. RESPONSIBILITIES.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.5. RESPONSIBILITIES.	**0.5. RESPONSIBILITIES.**						
0.5.a. Deputy Secretary. 0.5.a.(1) Ensure implementation of DOE QA requirements throughout the Department. 0.5.a.(2) Provide leadership for QA program development and implementation with the support of the Office of Health, Safety, and Security (HSS).	0.5. Deputy Secretary. 0.5.(1) Ensure implementation of DOE QA requirements throughout the Department. 0.5.(2) Provide leadership for QA program development and implementation with the support of the Office of **Environment**, Health, Safety, and Security (**EHSS**).	N/A – Does not contain requirements applicable to contractors					
0.5.b. **Secretarial Officers**. 0.5.b.(1) Notify cognizant contracting officers, (for other than field-issued contracts), of those contractors that should include the CRD or its requirements, as appropriate. The **Secretarial Officer** has the authority to direct the contracting officer, as necessary, to ensure appropriate quality requirements are implemented by the contractor. 0.5.b.(2) For **Secretarial Officers**, other than	0.5.b. **Program Secretarial Officers** (PSO). 0.5.b.(1) Notify cognizant contracting officers, (for other than field-issued contracts), of those contractors that should include the CRD or its requirements, as appropriate, **in their organization's contracts**. The **PSO** has the authority to direct the contracting officer, as necessary, to ensure appropriate quality requirements are implemented by the contractor.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					

the NNSA, act as the approval authority or delegate such authority, as appropriate, for QAPs within the Secretarial Officer's organization, and the DOE field elements and contractors within the purview of that Secretarial Office. The NNSA Secretarial Officers act as the approval authority for QAPs within the Secretarial Officer's organization. 0.5.b.(3) Provide direction and resources for implementing QA and SSQA requirements for work within their purview and ensure that the appropriate staff is qualified as specified in paragraph 4.c. 0.5.b.(4) Ensure development and approval of the QAP governing the work of their respective organization that meets the requirements of paragraph 4. 0.5.b.(5) Ensure reviews are performed of their **Secretarial Office's** QAP per paragraph 4.b.(2). 0.5.b.(6) For **Secretarial Officers**, other than NNSA, ensure review and approval of new or revised QAPs for: 0.5.b.(6)(a) field elements under their purview and 0.5.b.(6)(b) contractors within the purview of the **Secretarial Office**, if approval authority is not delegated. 0.5.b.(7) Ensure the QAPs are reviewed, and either rejected or approved within 90 calendar days of receipt. Requests for review/approval that are not approved or rejected within 90 calendar days from receipt will be deemed approved.	0.5.b.(2) For **PSOs**, other than the NNSA, act as the QA Approval Authority or delegate such authority, as appropriate, for QAPs within the Secretarial Officer's organization, and the DOE field elements and contractors within the purview of that Secretarial Office. The NNSA Secretarial Officers act as the QA Approval Authority for QAPs within the Secretarial Officer's organization. 0.5.b.(3) Provide direction and resources for implementing QA requirements for work within their purview and ensure that the appropriate staff is qualified as specified in paragraph 4.c. 0.5.b.(4) Ensure development and approval of the QAP governing the work of their respective organization that meets the requirements of paragraph 4 **of this Order**. 0.5.b.(5) Ensure reviews of their **PSO's** QAP are performed per paragraph 4.b.(2) **of this Order**. 0.5.b.(6) For **PSOs**, other than NNSA, ensure review and approval of new or revised QAPs for: 0.5.b.(6)(a) field elements under their purview; and 0.5.b.(6)(b) contractors within the purview of the **PSO** if approval authority is not delegated. 0.5.b.(7) Ensure the QAPs are reviewed, and either rejected or approved within 90 calendar days of receipt. Requests for review/approval that are not approved or rejected within 90 calendar days from receipt will be deemed approved.						
0.5.b.(8) Ensure review of safety documentation for the facility or activity to	(removed)	N/A – content does not exist					

validate that safety software has been properly identified. 0.5.b.(9) Ensure review of grading levels of safety software for approval by the QAP approval authority.		in DOE O 414.1E					
0.5.c. Field Element Manager (FEM). 0.5.c.(1) Notify contracting officers for field-issued contracts as to which contractors are affected by this Order. The Secretarial Officer has the authority to direct the contracting officer, as necessary, to ensure appropriate quality requirements are implemented by the contractor. 0.5.c.(2) For FEMs of sites, other than NNSA sites, where approval authority is delegated to the FEM, **review and approve** any new or revised QAPs for work under the FEM's purview. Where authority is not delegated to the FEM, review and comment on, and submit the QAPs to the Secretarial Officer for approval. 0.5.c.(3) For FEMs of NNSA sites, **review and approve** any new or revised QAPs for work under the FEM's purview, including the FEM and contractor QAPs. 0.5.c.(4) Provide resources and staff to meet the provisions of this Order and ensure that appropriate staff is qualified, as specified in paragraph 4.c. 0.5.c.(5) Ensure reviews are performed of the field element QAP per paragraph 4.b.(2) and update as necessary. **Submit to the approval authority the modified QAP.**	0.5.c. Field Element Managers (FEMs). 0.5.c.(1) Notify contracting officers, for field-issued contracts, which contractors are affected by this Order. The Secretarial Officer has the authority to direct the contracting officer, as necessary, to ensure appropriate quality requirements are implemented by the contractor. 0.5.c.(2) For FEMs of sites, other than NNSA sites, where approval authority is delegated to the FEM, **designate a reviewer and approve** any new or revised QAPs for work under the FEM's purview. Where authority is not delegated to the FEM, review and comment on, and submit the QAPs to the Secretarial Officer for approval. 0.5.c.(3) For FEMs of NNSA sites, **designate a reviewer and approve** any new or revised QAPs for work under the FEM's purview, including the FEM and contractor QAPs. 0.5.c.(4) Provide resources and staff to meet the provisions of this Order and ensure that appropriate staff is qualified, as specified in paragraph 4.c **of this Order**. 0.5.c.(5) Ensure reviews are performed of the field element QAP per paragraph 4.b.(2) of this Order and update, as necessary. **Obtain approval of the modified QAPD by the DOE QA Approval Authority.**	N/A – Does not contain requirements applicable to contractors					
0.5.c.(6) Ensure review of safety documentation for the facility or activity to	(removed)	N/A – content does not exist					

validate that safety software has been properly identified. 0.5.c.(7) Ensure review of grading levels of safety software for approval by the QAP approval authority.		in DOE O 414.1E					
0.5.d. Contracting Officers. Incorporate the CRD into contracts in a timely manner upon notification of its applicability.	0.5.d. Contracting Officers. Incorporate the CRD into appropriate contracts in a timely manner upon notification of their applicability.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.5.e. **Chief Health, Safety and Security Officer**. In addition to Secretarial Officer duties prescribed in paragraph 5.b., the **Chief Health, Safety and Security Officer** has the following responsibilities: 0.5.e.(1) Quality Policy. 0.5.e.(1)(a) Acts as the Office of Primary Interest (OPI) for this Order by meeting the requirements of the OPI described in DOE O 251.1, *Departmental Directives Program*, current version. 0.5.e.(1)(b) Develops and proposes QA policies and requirements (including those contained in this Order and 10 C.F.R. Part 830 Subpart A, *Quality Assurance*), **guides, and standards** for all DOE work. 0.5.e.(1)(c) Provides advice and assistance to DOE elements and contractors concerning implementation of this Order. 0.5.e.(1)(d) Serves as central point of contact for coordination within DOE and the liaison with other agencies and groups for the development of QA policy, requirements,	0.5.e. **Director of the Office of Environment, Health, Safety and Security**. In addition to Secretarial Officer duties prescribed in paragraph 5.b., the **Director of the Office of Environment, Health, Safety and Security** has the following responsibilities: 0.5.e.(1) Quality Policy. 0.5.e.(1)(a) Acts as the Office of Primary Interest (OPI) for this Order by meeting the requirements of the OPI described in DOE O 251.1, *Departmental Directives Program*, current version. 0.5.e.(1)(b) Develops and proposes QA policies and requirements (including those contained in this Order, 10 C.F.R. Part 830 Subpart A, *Quality Assurance*), and **related guides and standards** for all DOE work. 0.5.e.(1)(c) Provides advice and assistance to DOE elements and contractors concerning implementation of this Order. 0.5.e.(1)(d) Serves as central point of contact for coordination within DOE and the liaison with other agencies and groups for the	N/A – Does not contain requirements applicable to contractors					

guides, and standards. 0.5.e.(1)(e) Reviews proposed statutes, regulations, standards, DOE directives, and Defense Nuclear Facilities Safety Board documents for applicability to and potential impact on DOE quality programs. 0.5.e.(2) Quality Program Support. 0.5.e.(2)(a) Identifies and proposes resolutions for crosscutting QA issues within the Department to improve implementation. 0.5.e.(2)(b) Manages S/CI-related information and ensures the collection, screening, and communication of S/CI items that could potentially impact DOE operations. When notified by the Inspector General, General Counsel, Office of Intelligence and Counterintelligence, or other source of relevant S/CI issues outside DOE, ensures the DOE complex is appropriately informed.	development of QA policy, requirements, guides, and standards. 0.5.e.(1)(e) Reviews proposed statutes, regulations, standards, DOE directives, and Defense Nuclear Facilities Safety Board documents for applicability to and potential impact on DOE quality programs. 0.5.e.(2) Quality Program Support. 0.5.e.(2)(a) Identifies and proposes resolutions for crosscutting QA issues within the Department to improve implementation. 0.5.e.(2)(b) Manages Suspect/Counterfeit Item (S/CI)-related information and ensures the collection, screening, and communication of S/CI items that could potentially impact DOE operations. When notified by the Inspector General, General Counsel, Office of Intelligence and Counterintelligence, or other source of relevant S/CI issues outside DOE, ensures the DOE complex is appropriately informed.						
0.5.e.(2)(c) **Supports the management of the DOE SSQA program, including the Safety Software Central Registry.** **0.5.e.(2)(d) Develops and proposes requirements and guidance for safety software after formal coordination with the Office of Chief Information Officer.**	(removed)	N/A – content does not exist in DOE O 414.1E					
0.5.e.(2)(3) **Independent Assessments. Include assessment of QA implementation within the scope of independent assessment activities.**	0.5.f. **Director, Office of Enterprise Assessments. Plans and conducts independent oversight reviews of implementation of the requirements of this Order and the CRD (see DOE O 226.1B, Implementation of Department of Energy Oversight Policy, and DOE O 227.1A,**	N/A – Does not contain requirements applicable to contractors					

	Independent Oversight Program, for details).						

0.6. INVOKED STANDARDS.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.6. INVOKED TECHNICAL STANDARDS.	0.6. INVOKED STANDARDS.						
0.6. The following industry standard is invoked as a required method in this Order in accordance with the applicability and conditions described within this Order. Any technical standard or industry standard that is mentioned in or referenced by this Order, but is not included in the list below, is not invoked by this Order. Note: DOE O 251.1D, Appendix J provides a definition for "invoked technical standard." **0.6. ASME NQA-1-2008 with the NQA-1a-2009 addenda, *Quality Assurance Requirements for Nuclear Facility Applications*. This standard is required to be applied for new Hazard Category -1, -2, and -3 nuclear facilities, major modifications, and safety software at these facilities. See Attachment 1, Section 1.c.(1) and Attachment 4 for specific requirements. Heads of Departmental Elements may authorize the use of a later edition of this Standard to fulfill these requirements.**	0.6. **This Order does not invoke any DOE technical standards or industry standards as required methods of implementing this Order. Any technical standard or industry standard that is mentioned in or referenced by this Order is not invoked by this Order. Note: DOE O 251.1, current version, provides a definition for "invoked technical standard."**	N/A – Does not contain requirements applicable to contractors					

0.7. DEFINITIONS.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.7. DEFINITIONS. **(Note: Parenthetical provides the source document for the definition).**	0.7. DEFINITIONS.						
0.7.a. Acceptance Testing. The process of exercising or evaluating a system or system component by manual or automated means to ensure that it satisfies the specified requirements and to identify differences between expected and actual results in the operating environment. (ASME NQA-1-2008 with the NQA-1a-2009 addenda)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.b. Administrative Controls. The provisions relating to organization and management, procedures, record keeping, assessment, and reporting necessary to ensure safe operation of a facility. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.c. Assessment (Assess). A review, evaluation, inspection, test, check, surveillance, or audit to determine and document whether items, processes, systems, or services meet specified requirements and perform effectively.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.d. Configuration Management. The process that controls the activities, and interfaces, among design, construction, procurement, training, licensing, operations, and maintenance	(removed)	N/A – content does not exist in DOE O 414.1E					

to ensure that the configuration of the facility is established, approved, and maintained. (ASME NQA-1-2008 with the NQA-1a-2009 addenda)							
0.7.e. Corrective Action. Measures taken to rectify conditions adverse to quality and, where necessary, to preclude repetition. (ASME NQA-1-2008 with the NQA-1a-2009 addenda)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.f. Critical Decision 1 (CD-1). CD-1 approval marks the completion of the Project Definition Phase and the Conceptual Design. Approval of CD-1 provides the authorization to begin the Project Execution Phase and allows Project Engineering and Design (PED) funds to be used. (DOE O 413.3, current version)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.g. Design Authority. The engineer designated by the Acquisition Executive to be responsible for establishing the design requirements and ensuring that design output documentation appropriately and accurately reflect the design basis. The Design Authority is responsible for design control and ultimate technical adequacy of the design process. These responsibilities are applicable whether the process is conducted fully in-house, partially contracted to outside organizations, or fully contracted to outside organizations. The Design Authority may delegate design work [authorities] but not its responsibilities. (DOE O 413.3, current version)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.h. Graded Approach. The process of ensuring that the levels of analyses, documentation, and actions used to comply with requirements are commensurate with: (1) the relative importance to safety, safeguards, and security; (2) the magnitude of any hazard involved;	(removed)	N/A – content does not exist in DOE O 414.1E					

(3) the life-cycle stage of a facility or item; (4) the programmatic mission of a facility; (5) the particular characteristics of a facility or item; (6) the relative importance to radiological and nonradiological hazards; and, (7) any other relevant factors. (10 C.F.R. § 830.3)							
0.7.i. Hazard. A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to personnel or damage to a facility or to the environment (without regard to the likelihood or credibility of accident scenarios or consequence mitigation). (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.j. Hazard Controls. Measures to eliminate, limit, or mitigate hazards to workers, the public, or the environment, including: 0.7.j.(1) physical, design, structural, and engineering features; 0.7.j.(2) safety structures, systems, and components (SSCs); 0.7.j.(3) safety management programs; 0.7.j.(4) technical safety requirements; and 0.7.j.(5) other controls necessary to provide adequate protection from hazards. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.k. Independent Assessment. An assessment conducted by individuals within the organization or company but independent from the work or process being evaluated, or by individuals from an external organization or company. (DOE G 414.1-1, current version)	(removed)	N/A – content does not exist in DOE O 414.1E					

0.7.l. Item. An all-inclusive term used in place of appurtenance, assembly, component, equipment, material, module, part, structure, product, software, subassembly, subsystem, system, unit, or support systems. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.m. Management Assessment. A periodic introspective self-analysis, conducted by management, to evaluate management systems, processes, and programs ensuring the organization's work is properly focused on achieving desired results. (DOE G 414.1-1, current version)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.n. Nonreactor Nuclear Facility. A facility, activity, or operation that involves or will involve radioactive and/or fissionable materials in such a form and quantity that a nuclear or a nuclear explosive hazard potentially exists to workers, the public, or the environment, but does not include accelerators and their operations and does not include activities involving only incidental use and generation of radioactive materials or radiation such as check and calibration sources, use of radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and X-ray machines. **(10 C.F.R. § 830.3)**	0.7.a. Nonreactor Nuclear Facility. Facilities, activities or operations that involve, or will involve, radioactive and/or fissionable materials in such form and quantity that a nuclear or a nuclear explosive hazard potentially exists to workers, the public, or the environment, but does not include accelerators and their operations and does not include activities involving only incidental use and generation of radioactive materials or radiation such as check and calibration sources, use of radioactive sources in research and experimental and analytical laboratory activities, electron microscopes, and X-ray machines.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.7.o. Nuclear Facility. A reactor, or a nonreactor nuclear facility, where an activity is conducted for or on behalf of DOE and includes any related area, structure, facility, or activity to the extent necessary to ensure proper implementation of the requirements **established by 10 CFR 830. (10 C.F.R. § 830.3)**	0.7.b. Nuclear Facility. A reactor or a nonreactor nuclear facility where an activity is conducted for or on behalf of DOE and includes any related area, structure, facility, or activity to the extent necessary to ensure proper implementation of the requirements.	N/A – Does not contain requirements applicable to contractors					

0.7.p. Process. A series of actions that achieves an end or result. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.q. Quality. The condition achieved when an item, service, or process meets or exceeds the user's requirements and expectations. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.r. Quality Assurance. All those actions that provide confidence that quality is achieved. (10 C.F.R. § 830.3)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.s. Quality Assurance Program. The overall program or management system established to assign responsibilities and authorities, define policies and requirements, and provide for the performance and assessment of work. (**10 C.F.R. § 830.3)**	0.7.c. Quality Assurance Program (QAP). The overall program or management system established to assign responsibilities and authorities, define policies and requirements, and provide for the performance and assessment of work.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
(none)	0.7.d. **Quality Assurance Program Description (QAPD). A document describing how the quality assurance requirements of Attachment 2 to this Order and any additional contractual and federal quality related requirements are met**.	N/A – Does not contain requirements applicable to contractors					
0.7.t. Safety. An all-inclusive term to encompass protection of the public, workers, and the environment (used synonymously with environment, safety, and health).	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.u. Safety Software. Includes the following:	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.v. Safety System Software. Software for a nuclear facility that performs a safety function as part of an SSC and is cited in either (a) a	(removed)	N/A – content does not exist					

DOE-approved documented safety analysis; or, (b) an approved hazard analysis per DOE P 450.4, current version and 48 C.F.R. 970-5223.1.		in DOE O 414.1E					
0.7.w. Safety and Hazard Analysis Software and Design Software. Software that is used to classify, design, or analyze nuclear facilities. This software is not part of an SSC but helps to ensure the proper accident or hazards analysis of nuclear facilities or an SSC that performs a safety function.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.x. Safety Management and Administrative Controls Software. Software that performs a hazard control function in support of nuclear facility or radiological safety management programs or technical safety requirements or other software that performs a control function necessary to provide adequate protection from nuclear facility or radiological hazards. This software supports eliminating, limiting, or mitigating nuclear hazards to workers, the public, or the environment as addressed in 10 C.F.R. Parts 830 and 835, the DEAR Integrated Safety Management System clause, and 48 C.F.R. 970-5223.1.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.y. Safety Software Central Registry. An information repository designated to contain the list of the Department's safety software toolbox code including code-specific gap analysis documents, guidance documents, and contact information.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.z. Service. The performance of work, such as design, manufacturing, construction, fabrication, assembly, decontamination, environmental remediation, environmental restoration, waste management, laboratory sample analyses, safety software development/validation/testing, inspection,	(removed)	N/A – content does not exist in DOE O 414.1E					

nondestructive examination/testing, environmental qualification, equipment qualification, training, assessment, repair, and installation or the like. (10 C.F.R. § 830.3)							
0.7.aa. Software. Computer programs and associated documentation and data pertaining to the operation of a computer system. (ASME NQA-1-2008 with the NQA-1a-2009 addenda)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.bb. Suspect/Counterfeit Items (S/CIs). **0.7.bb. An item which is suspect when inspection or testing indicates that it may not conform to established Government or industry-accepted specifications or national consensus standards or whose documentation, appearance, performance, material, or other characteristics may have been misrepresented by the vendor, supplier, distributor, or manufacturer.** **0.7.bb. A counterfeit item is one that has been copied or substituted without legal right or authority or whose material, performance, or characteristics have been misrepresented by the vendor, supplier, distributor, or manufacturer. Items that do not conform to established requirements are not normally considered S/CIs if non-conformity results from one or more of the following conditions (which must be controlled by site procedures as nonconforming items):** **0.7.bb.(1) defects resulting from inadequate design or production quality control;** **0.7.bb.(2) damage during shipping, handling, or storage;** **0.7.bb.(3) improper installation;** **0.7.bb.(4) deterioration during service;**	**0.7.e. Suspect/Counterfeit Items (S/CIs). A general term that includes:** **(1) Suspect Items. Items that have indications that they may not be genuine but there is not yet definitive proof of counterfeiting or fraud.** **(2) Counterfeit Items. Items that are manufactured, refurbished, or altered to imitate original products without authorization in order to be passed off as genuine.** **(3) Fraudulent Items. Items that are misrepresented with the intent to deceive, including items provided with incorrect identification or falsified and/or inaccurate certification. They may also include items sold by entities that have acquired the legal right to manufacture a specified quantity of an item but which has produced a larger quantity than authorized and has sold the excess as legitimate inventory.**	N/A – Does not contain requirements applicable to contractors				

0.7.bb.(5) degradation during removal; **0.7.bb.(6) failure resulting from aging or misapplication; or,** **0.7.bb.(7) other controllable causes. (IAEA-TECDOC-1169)**							
0.7.cc. Testing. An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions. (ASME NQA-1-2008 with the NQA-1a-2009 addenda)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.dd. Validation. The process of: (a) evaluating a system or component during, or at the end of the development process to determine whether it satisfies specified requirements; or, (b) providing evidence that the software, and its associated products, satisfies system requirements allocated to software at the end of each life-cycle activity, solves the right problem (e.g., correctly models physical laws, implements business rules, uses the proper system assumptions), and satisfies the intended use and user needs. (IEEE Standard 1012-2004)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.7.ee. Verification. The process of: (a) evaluating a system or component to determine whether the products of a given development phase satisfy the conditions imposed at the start of that phase; or, (b) providing objective evidence that the software and its associated products conforms to requirements (e.g., for correctness, completeness, consistency, accuracy) for all life-cycle activities during each life-cycle process (acquisition, supply, development, operation, and maintenance); satisfies standards, practices, and conventions during life-cycle processes; and, successfully	(removed)	N/A – content does not exist in DOE O 414.1E					

completes each life-cycle activity and satisfies all the criteria for initiating succeeding life-cycle activities (e.g., building the software correctly). (IEEE Standard 1012-2004)							
0.7.ff. Work. A defined task or activity such as: research and development; manufacturing; operations; environmental remediation; maintenance and repair; administration; software (including safety software) development, validation, testing, and use; inspection; safeguards and security; or, data collection and analysis.	(removed)	N/A – content does not exist in DOE O 414.1E					

0.8. REFERENCES.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.8. REFERENCES.	0.8. REFERENCES.						
The following documents provide guidance and/or related requirements for implementing this Order. DOE directives are available at http://www.directives.doe.gov.	The following documents provide guidance and/or related requirements for implementing this Order. DOE directives are available at http://www.directives.doe.gov.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.a. Executive Order 12344, *Naval Nuclear Propulsion Program*, dated 02-01-82.	0.8.c. Executive Order 12344, Naval Nuclear Propulsion Program, dated 02-01-82.	N/A – No material changes to					

		language or intent; Does not contain requirements applicable to contractors					
0.8.b. P.L. 106-65, Department of Defense Authorization Act of 2000.	0.8.a. P.L. 106-65, Department of Defense Authorization Act of 2000.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.c. 10 Code of Federal Regulations (C.F.R.) 830, *Nuclear Safety Management*.	0.8.b. 10 Code of Federal Regulations (C.F.R.) 830, Nuclear Safety Management.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.d. 48 C.F.R. § 970.5223-1, Integration of Environment, Safety, and Health into Work Planning and Execution.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.e. DOE P 450.4, *Integrated Safety Management Policy*, current version.	0.8. d. DOE P 450.4A, *Integrated Safety Management Policy*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
(none)	0.8. p. DOE O 450.2, *Integrated Safety Management*, current version	N/A – No material changes to					

		language or intent; Does not contain requirements applicable to contractors					
0.8.f. DOE O 210.2, *DOE Corporate Operating Experience Program*, current version	0.8. g. DOE O 210.2, *DOE Corporate Operating Experience Program*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.g. DOE O 221.1, *Reporting Fraud, Waste and Abuse to the Office of Inspector General,* current version.	0.8. h. DOE O 221.1, *Reporting Fraud, Waste and Abuse to the Office of Inspector General*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.h. DOE O 226.1, *Implementation of Department of Energy Oversight Policy*, current version.	0.8. i. DOE O 226.1, *Implementation of Department of Energy Oversight Policy*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.i. DOE O 227.1*, Independent Oversight Program*, current version.	(removed)	N/A – content does not exist in DOE O 414.1E					

0.8.j. DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*, current version.	0.8. j. DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.k. DOE O 251.1, *Departmental Directives Program*, current version.	0.8. k. DOE O 251.1, *Departmental Directives Program*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.l. DOE O 410.1, *Central Technical Authority Responsibilities Regarding Nuclear Safety Requirements*, current version.	0.8.l. DOE O 410.1, *Central Technical Authority Responsibilities Regarding Nuclear Safety Requirements*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.m. DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*, current version.	0.8. m. DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.n. DOE O 426.1, *Department of Energy Federal Technical Capabilities*, current version.	0.8.o. DOE O 426.1, *Department of Energy Federal Technical Capabilities*, current version.	N/A – No material changes to language or					

		intent; Does not contain requirements applicable to contractors					
0.8.o. DOE G 413.3-2, *Quality Assurance Guide for Project Management*, current version.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.p. DOE G 414.1-1, *Management and Independent Assessments Guide,* current version.	0.8. q. DOE G 414.1-1, *Management and Independent Assessments Guide*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.q. DOE G 414.1-2, *Quality Assurance Program Guide,* d current version.	0.8.r. DOE G 414.1-2, *Quality Assurance Program Guide*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.r. 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*, current version.	0.8. s. DOE G 414.1-4, *Safety Software Guide for Use with 10 CFR 830, Subpart A, Quality Assurance Requirements*, current version.	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.s. DOE-STD-1150-2013, *Quality Assurance Functional Area Qualification Standard*, dated April 2002 (or latest version).	0.8. t. DOE-STD-1150-2013, *Quality Assurance Functional Area Qualification Standard*, dated December 2013	N/A – No material changes to language or					

		intent; Does not contain requirements applicable to contractors					
0.8.t. DOE-STD-1172-2011, *Safety Software Quality Assurance Functional Area Qualification Standard*, dated December 2003 (or latest version).	0.8.u. DOE-STD-1172-2011, *Safety Software Quality Assurance Functional Area Qualification Standard*, dated March 2011 (or latest version).	N/A – No material changes to language or intent; Does not contain requirements applicable to contractors					
0.8.u. DOE-STD-1189-2008, *Integration of Safety into the Design Process*, dated March 2008 (or latest version).	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.v. DOE-STD-1025-2008, *Weapon Quality Assurance Qualification Standard*, dated September 2008 (or latest version).	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.w. Institution of Electrical and Electronics Engineers (IEEE) Standard 610.12-1990, *IEEE Standard Glossary of Software Engineering Terminology*.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.x. IEEE Standard 1012-2004, IEEE Standard for Software Verification and Validation.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.y. International Atomic Energy Agency (IAEA) standard, IAEA-TECDOC-1169, *Managing Suspect and Counterfeit Items in the Nuclear Industry*, dated August 2000. (http://www-pub.iaea.org/MTCD/publications/PDF/te_1169_prn.pdf)	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.z. American Society of Mechanical Engineers (ASME), NQA-1-2008 with the	(removed)	N/A – content does not exist					

NQA-1a-2009 addenda, *Quality Assurance Requirements for Nuclear Facility Applications*.		in DOE O 414.1E					
0.8.aa. American Society of Mechanical Engineers (ASME), NQA-1-2000, Quality Assurance Requirements for Nuclear Facility Applications.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.bb. ANSI/ISO/ASQ Q9001-2008, Quality Management System-Requirements.	(removed)	N/A – content does not exist in DOE O 414.1E					
0.8.cc. ANSI/ASQ Z 1.13-1999, Quality Guidelines for Research.	(removed)	N/A – content does not exist in DOE O 414.1E					
(none)	**0.8.e. DOE O 200.1, *Information Technology Management*, current version**	N/A – Does not contain requirements applicable to contractors					
(none)	**0.8.f. DOE O 205.1, *Department of Energy Cybersecurity Program*, current version**	N/A – Does not contain requirements applicable to contractors					
(none)	**0.8.n. DOE O 414.1C, *Quality Assurance*, current version.**	N/A – Does not contain requirements applicable to contractors					
(none)	**0.8.v. DOE-HDBK 1221-2016 Chg. Notice 1, *Suspect/Counterfeit Items Resource Handbook*, dated January 2017**	N/A – Does not contain requirements applicable to contractors					

0.9. CONTACT.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
0.9. CONTACT.	0.9. CONTACT.						
Questions concerning this Order should be addressed to the **Office of Quality Assurance Policy and Assistance, 301-903-5452.**	Questions concerning this Order should be addressed to the **Office of Quality Assurance and Nuclear Safety Management Programs (EHSS-32).**	N/A – Does not contain requirements applicable to contractors					

1. Attachment 1: Contractor Requirements Document

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
Attachment 1: Contractor Requirements Document	Attachment 1: Contractor Requirements Document						
1. Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this CRD.	1. Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this CRD.	N/A – No material changes to language or intent					

1. The contractor is responsible for flowing down the applicable requirements of this CRD, **to the extent necessary**, to subcontractors at any tier, as well as vendors and suppliers, to ensure the contractor's compliance with the **requirements** and the safe performance of work.	1. The contractor is responsible for flowing down the applicable requirements of this CRD **throughout its organization**, to its subcontractors at any tier and its vendors and suppliers, to ensure compliance with the **requirements of this CRD** and for the safe performance of work.	CRD requirements should be flowed down through policy and through Terms & Conditions for suppliers as "applicable", per the Order.					
1. In addition to the requirements set forth in this CRD, **Attachments 2, 3 and 4** to DOE O 414.1D are made a part of this CRD and provide program requirements and/or information applicable to contracts in which this CRD is inserted.	1. This CRD also incorporates **Attachment 2** to DOE O 414.1E, referenced in and made a part of this CRD, which provides additional program requirements and/or information applicable to contracts in which this CRD is inserted.	This is an administrative language change which merely acknowledges the consolidation of 1D attachments 2, 3, and 4 into 1E attachment 2.					
(none)	**1. Requests for equivalencies and exemptions to the requirements of this CRD are to be made via the cognizant contracting officer. Any exemption or equivalency to this Order affecting nuclear facilities requires concurrence from the appropriate Central Technical Authority (CTA).**						
1. When the contractor conducts activities or provides items or services that affect or may affect the safety of DOE (including National Nuclear Security Administration [NNSA]) nuclear facilities, it must **conduct work in accordance with the quality assurance (QA) requirements of** 10 C.F.R. Part 830 Subpart A and the additional requirements of this CRD,	1. For those activities, items, or services that affect or may affect the safety of DOE (including National Nuclear Security Administration [NNSA]) nuclear facilities, the contractor must **comply with** 10 C.F.R. Part 830.	This change merely clarifies the original requirement and removes redundant language.					

unless the work falls within one or more of the exclusions found in 10 C.F.R. § 830.2.							
(none)	**1. The requirements contained within this Order do not contradict 10 C.F.R. Part 830. When the regulation(s) are stricter than this CRD, the contractor must comply with the regulation(s), as applicable, and comply with this CRD, in addition to the regulation(s).**	This addition merely clarifies the intent of the Order's standing within the hierarchy of requirements, which is already understood.					
1.1.b. **Note: This requires that all software meet applicable QA requirements in Attachment 2, using a graded approach.**	1. **Software (including systems and subsystems) are considered an item. The software lifecycle must be addressed and documented within the QAP.**						
1. Requirements of this CRD that overlap or duplicate Nuclear Regulatory Commission (NRC) requirements are not applicable to facilities or activities (including design, construction, operation, deactivation and decommissioning) subject to a NRC license (including construction authorization) and related NRC regulatory authority.	(removed)	N/A – content does not exist in DOE O 414.1E					
1. Other requirements in this CRD may be applied to the extent determined appropriate by the responsible Program Office.	(removed)	N/A – content does not exist in DOE O 414.1E					

1.1. QUALITY MANAGEMENT SYSTEM DEVELOPMENT.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
1.1. QUALITY ASSURANCE PROGRAM DEVELOPMENT **AND IMPLEMENTATION**.	1.1. QUALITY MANAGEMENT SYSTEM DEVELOPMENT.						
1.1. The contractor, **using a graded approach**, must develop a QAP and conduct work in accordance with the approved QAP that meets the requirements of this CRD. The QAP must do the following:	1.1.a. The contractor is responsible for developing and documenting a quality assurance program (QAP) **in compliance with the contract scope of work**, while meeting the requirements of this CRD, **including Attachment 2 to DOE O 414.1E.**	The added language merely clarifies the intent of the CRD, which is already understood and implemented.					
(none)	1.1.b. **QAP development must account for the integration of additional contractual and federal quality-related requirements.**						
1.1. The contractor must identify and assign an individual to have responsibility, authority, and accountability to ensure the development, implementation, assessment, maintenance, and improvement of the QAP.	1.1.c. The contractor must identify and assign an individual **within their organization** to have responsibility, authority, and accountability for QAP development, implementation, assessment, maintenance, and improvement.						

1.2. QUALITY MANAGEMENT SYSTEM APPROVAL AND CHANGES.

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
1.2. QUALITY ASSURANCE PROGRAM APPROVALS AND CHANGES.	1.2. QUALITY MANAGEMENT SYSTEM APPROVAL AND CHANGES.						
1.2. The contractor must: 1.2.a. Submit a **QAP** to DOE for approval within 90 days of being awarded a DOE contract.	1.2. The contractor must: 1.2.a. Submit a **QAPD** to DOE or NNSA for approval within 90 days of being awarded a DOE contract **containing this CRD**.	N/A – No material changes to language or intent					
(none)	**1.2.a.(1) The QAPD must be a summary of the QAP.**	This change merely clarifies the intent of the requirement, which is already understood.					
(none)	**1.2.a.(2) The QAPD must adequately prescribe the flow down of requirements to working level processes (e.g., procedures, instructions, or any other similar term used in the implementing documents.)**						
1.1.c. **Use** appropriate national or international consensus standards consistent with contractual and regulatory requirements, and Secretarial Officer direction. **Clearly identify which standards, or parts of the standards, are used.**	1.2.a.(3) The **selection** of the voluntary consensus standard(s) used to develop the **working level processes of the QAP must be described**.						

1.1.c. When standards do not fully address the CRD requirements, the gaps must be addressed in the **QAP**.	1.2.a.(3)(a) Gaps between the selected consensus standard(s) and Attachment 2 of this Order must be addressed within the **QAPD**.	N/A – No material changes to language or intent					
1.1.c. Select and document the appropriate choice below. **1.1.c.(1) For Hazard Category 1, 2 and 3 nuclear facilities:** **1.1.c.(1)(a) Existing facilities, or new facilities and major modifications to existing facilities achieving Critical Decision 1 (CD-1) prior to the issuance of the Order containing this CRD, continue to use the consensus standard cited in the DOE-approved QAP consistent with Secretarial Officer direction.** **1.1.c.(1)(b) New facilities and major modifications to existing facilities achieving Critical Decision 1 (CD-1) after the Order containing this CRD has been issued use ASME NQA-1-2008 with the NQA-1a-2009 addenda (or a later edition), *Quality Assurance Requirements for Nuclear Facility Applications*, Part I and applicable requirements of Part II.** **Note: Where NQA-1, Part II language uses the terms "nuclear power plant" or "nuclear reactor", these terms are considered equivalent to the term "nuclear facility" used in this CRD.** **1.1.c.(1)(c) Consensus standard(s) that provide an equivalent level of quality requirements as required in paragraphs 1.c.(1).(b) may be used in lieu of those specified to implement the requirements of this CRD. The QAP must document how this consensus standard is (or a set of consensus standards are) used, as well as how they are**	**1.2.a.(3)(b) For Hazard Category 1, 2, and 3 nuclear facilities, ASME NQA-1 (NQA-1-2008 with the NQA-1a-2009 addenda or later version) is the preferred standard for use as the basis of the QAP with appropriate gaps (e.g., software and work control) addressed. Other voluntary consensus standards may be used upon approval by the DOE QA Approval Authority.**						

equivalent to the consensus standard listed in 1.c.(1).(b). **1.1.c.(2) For other activities and facilities (e.g., less than hazard category 3, non-nuclear, or chemically hazardous) use in whole or in part appropriate standards. Examples of appropriate standards include:** **1.1.c.(2)(a) ASME NQA 1-2008 with the NQA-1a 2009 addenda, *Quality Assurance Requirements for Nuclear Facility Applications*, Part I and applicable requirements of Part II;** **1.1.c.(2) (b) ASME NQA 1-2000, *Quality Assurance Requirements for Nuclear Facility Applications*, Part I and applicable requirements of Part II;** **1.1.c.(2) (c) ANSI/ISO/ASQ Q9001-2008, Quality Management System: Requirements; and,** **1.1.c.(2) (d) ANSI/ASQ Z 1.13-1999, Quality Guidelines for Research.**							
1.1.a. Describe the graded approach used in the QAP.	1.2.a.(4) The QAPD must also provide **a summary** explaining the graded approach. **1.2.a.(4)(a) The implementation of a graded approach is fundamental to a quality assurance program because it ensures that resources are allocated, and efforts are focused in proportion to the risks associated with a product, process, or project. Where appropriate, a graded approach must be used to implement the requirements of this CRD.** **1.2.a.(4)(b) Graded approach means the process of ensuring that the level of analysis, documentation, and actions used to comply with a requirement are commensurate with:**	The added language merely clarifies the current requirement, which is already understood, and incorporates the preexisting definition of graded approach into the CRD.					

	1.2.a.(4)(b)1 the relative importance to safety, safeguards, and security; **1.2.a.(4)(b)2 the magnitude of any hazard involved;** **1.2.a.(4)(b)3 the life-cycle stage of a facility or item;** **1.2.a.(4)(b)4 the programmatic mission of a facility;** **1.2.a.(4)(b)5 the particular characteristics of a facility or item;** **1.2.a.(4)(b)6 the relative importance to radiological and nonradiological hazards; and,** **1.2.a.(4)(b)7 any other relevant factors. (10 C.F.R. § 830.3)** **The basis of the graded approach must be documented for applicable quality assurance requirement in this CRD, and that documentation must be submitted to DOE as part of the QAPD. The graded approach must not be used to negate any applicable requirements.**						
1.1.b. **Implement QA criteria as defined in Attachment 2, as well as the requirements in Attachment 3 for all facilities, and the requirements in Attachment 4 for nuclear facilities**, and describe how the criteria/requirements are met, using the documented graded approach.	1.2.a.(5) The QAPD must describe how the requirements of this CRD are met.	The added language merely clarifies the current requirement, which is already understood.					
1.2.d. Regard a QAP as approved by DOE, 90 calendar days after receipt by DOE, unless approved or rejected by DOE at an earlier date. Receipt includes acknowledgement by the receiving organization, **and every official**	1.2.a.(6) The QAP will be regarded as approved by DOE 90 calendar days after receipt by DOE, unless the QAPD is approved or rejected at an earlier date. The QAP will be considered received upon acknowledgement by						

submittal to DOE restarts the 90 day clock.	the receiving organization.						
1.2.b. Implement the QAP as approved by DOE.	1.2.b. Implement the QAP per the approval issued by DOE.	N/A – No material changes to language or intent					
(none)	**1.2.c. Modify the QAP as directed by the designated DOE contracting authority.**						
1.2.c. Review the QAP annually, and update as needed. Submit a summary of the annual review of the QAP and, if necessary, also submit the modified **QAP** to the DOE approval authority. Editorial changes, that do not reduce or change **commitments**, do not require approval.	1.2.d. Review the QAP annually and update as needed. Submit a summary of the annual review of the QAP and, if necessary, also submit the modified **QAPD** to the DOE QA Approval Authority. Editorial changes, that do not reduce or change **provisions of the QAP or QAPD** do not require approval **by the DOE QA Approval Authority**.	N/A – No material changes to language or intent					
1.2.e. For subcontractor, vendor, and supplier activities that are not governed by the contractor's DOE-approved QAP, evaluate their program to ensure they meet applicable QA requirements.	(removed)	N/A – content does not exist in DOE O 414.1E					

2. Attachment 2 Quality Assurance Requirements

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						

2. QUALITY ASSURANCE CRITERIA	2. ATTACHMENT 2 QUALITY ASSURANCE REQUIREMENTS						
2. This attachment provides **information and/or** requirements associated with **DOE O 414.1D and is** applicable to contracts in which the associated CRD (Attachment 1) is inserted.	2. This Attachment provides requirements associated with **DOE O 414.1E as well as requirements** applicable to contracts in which the associated CRD (Attachment 1 to DOE O 414.1E) is inserted. **The requirements are in Part A for general QA criteria, Part B for Suspect/Counterfeit Item Prevention, and Part C for Software QA.**	N/A – No material changes to language or intent					

2.A. PART A – QUALITY ASSURANCE CRITERIA

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
(none)	**2.A. Part A – Quality Assurance Criteria**						
(none)	2.A. **For all work performed by and for the Department, the quality assurance program must establish, identify, and implement processes for:**	This language does not impose a new requirement.					
2.1. Criterion 1— Management/Program. 2.1.a. Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. 2.1.b. Establish management processes, including planning, scheduling, and providing resources for the work.	2.A.1. Criterion 1— Management/Program. 2.A.1.a. Establish an organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. 2.A.1.b. Establish management processes, including planning, scheduling, and providing resources for the work.	N/A – No material changes to language or intent					

2.2. Criterion 2— Management/Personnel Training and Qualification. 2.2.a. Train and qualify personnel to be capable of performing their assigned work. 2.2.b. Provide continuing training to personnel to maintain their job proficiency.	2.A.2. Criterion 2— Management/Personnel Training and Qualification. 2.A.2.a. Train and qualify personnel to be capable of performing their assigned work. 2.A.2.b. Provide continuing training to personnel to maintain their job proficiency.	N/A – No material changes to language or intent					
2.3. Criterion 3— Management/Quality Improvement. 2.3.a. Establish and implement processes to detect and prevent quality problems. 2.3.b. Identify, control, and correct items, services, and processes that do not meet established requirements. 2.3.c. Identify the causes of problems, and include prevention of recurrence as a part of corrective action planning. 2.3.d. Review item characteristics, process implementation, and other quality related information to identify items, services, and processes needing improvement.	2.A.3. Criterion 3— Management/Quality Improvement. 2.A.3.a. Establish and implement processes to detect and prevent quality problems. 2.A.3.b. Identify, control, and correct items, services, and processes that do not meet established requirements. 2.A.3.c. Identify the causes of problems and include prevention of recurrence as a part of corrective action planning. 2.A.3.d. Review item characteristics, process implementation, and other quality related information to identify items, services, and processes needing improvement.	N/A – No material changes to language or intent					
2.4. Criterion 4— Management/Documents and Records. 2.4.a. Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. 2.4.b. Specify, prepare, review, approve, and maintain records.	2.A.4. Criterion 4— Management/Documents and Records. 2.A.4.a. Prepare, review, approve, issue, use, and revise documents to prescribe processes, specify requirements, or establish design. 2.A.4.b. Specify, prepare, review, approve, and maintain records.	N/A – No material changes to language or intent					
2.5. Criterion 5— Performance/Work Processes. 2.5.a. Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, or other appropriate	2.A.5. Criterion 5— Performance/Work Processes. 2.A.5.a. Perform work consistent with technical standards, administrative controls, and other hazard controls adopted to meet regulatory or contract requirements using approved instructions, procedures, or other appropriate	N/A – No material changes to language or intent					

means. 2.5.b. Identify and control items to ensure proper use. 2.5.c. Maintain items to prevent damage, loss, or deterioration. 2.5.d. Calibrate and maintain equipment used for process monitoring or data collection.	means. 2.A.5.b. Identify and control items to ensure proper use. 2.A.5.c. Maintain items to prevent damage, loss, or deterioration. 2.A.5.d. Calibrate and maintain equipment used for process monitoring or data collection.						
2.6. Criterion 6— Performance/Design. 2.6.a. Design items and processes using sound engineering/scientific principles and appropriate standards. 2.6.b. Incorporate applicable requirements and design bases in design work and design changes. 2.6.c. Identify and control design interfaces. 2.6.d. Verify or validate the adequacy of design products using individuals or groups other than those who performed the work. 2.6.e. Verify or validate work before approval and implementation of the design.	2.A.6. Criterion 6— Performance/Design. 2.A.6.a. Design items and processes using sound engineering/scientific principles and appropriate standards. 2.A.6.b. Incorporate applicable requirements and design bases in design work and design changes. 2.A.6.c. Identify and control design interfaces. 2.A.6.d. Verify or validate the adequacy of design products using individuals or groups other than those who performed the work. 2.A.6.e. Verify or validate work before approval and implementation of the design.	N/A – No material changes to language or intent					
2.7. Criterion 7— Performance/Procurement. 2.7.a. Procure items and services that meet established requirements and perform as specified. 2.7.b. Evaluate and select prospective suppliers on the basis of specified criteria. 2.7.c. Establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services.	2.A.7. Criterion 7— Performance/Procurement. 2.A.7.a. Procure items and services that meet established requirements and perform as specified. 2.A.7.b. Evaluate and select prospective suppliers on the basis of specified criteria. 2.A.7.c. Establish and implement processes to ensure that approved suppliers continue to provide acceptable items and services.	N/A – No material changes to language or intent					
2.8. Criterion 8— Performance/Inspection and Acceptance Testing. 2.8.a. Inspect and test specified items, services, and processes using established acceptance and	2.A.8. Criterion 8— Performance/Inspection and Acceptance Testing. 2.A.8.a. Inspect and test specified items, services, and processes using established	N/A – No material changes to					

performance criteria. 2.8.b. Calibrate and maintain equipment used for inspections and tests.	acceptance and performance criteria. 2.A.8.b. Calibrate and maintain equipment used for inspections and tests.	language or intent					
2.9. Criterion 9— Assessment/Management Assessment. 2.9. Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.	2.A.9. Criterion 9— Assessment/Management Assessment. 2.A.9. Ensure that managers assess their management processes and identify and correct problems that hinder the organization from achieving its objectives.	N/A – No material changes to language or intent					
2.10. Criterion 10— Assessment/ Independent Assessment. 2.10.a. Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. 2.10.b. Establish sufficient authority and freedom from line management for independent assessment teams. 2.10.c. Ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas to be assessed.	2.A.10. Criterion 10— Assessment/ Independent Assessment. 2.A.10.a. Plan and conduct independent assessments to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. 2.A.10.b. Establish sufficient authority and freedom from line management for independent assessment teams. 2.A.10.c. Ensure persons who perform independent assessments are technically qualified and knowledgeable in the areas to be assessed.	N/A – No material changes to language or intent					

2.B. PART B – SUSPECT/COUNTERFEIT ITEM (S/CI) PREVENTION

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						

3. Attachment 3 **SUSPECT/COUNTERFEIT ITEMS PREVENTION**	**2.B. Part B – Suspect/Counterfeit Item (S/CI) Prevention**						
3. This attachment provides information and/or requirements associated with DOE O 414.1D and is applicable to contracts in which the associated CRD (Attachment 1) is inserted.	(removed)	N/A – content does not exist in DOE O 414.1E					
3.1. PURPOSE. **To set forth requirements for DOE and its contractor organizations, as part of their QAPs**, to establish, document and implement effective controls and processes that will:	2.B. Processes for Suspect/Counterfeit Item Prevention must be identified, established, and implemented within the QAP.	N/A – No material changes to language or intent					
3.1.(1) ensure items and services meet specified requirements; 3.1.(2) prevent entry of Suspect/Counterfeit Items (S/CIs) into the DOE supply chain; and 3.1.(3) ensure detection, control, reporting, and disposition of S/CIs.	2.B.1. **Suspect/Counterfeit Items Prevention:** Ensure items meet specified requirements, prevent entry of S/CIs **and software** into the DOE supply chain, and ensure detection, control, reporting, and appropriate disposition of S/CIs.						
3.2. REQUIREMENTS. The organization's QAP must: 3.2.a. Include a S/CI oversight and prevention process **commensurate with the facility/activity hazards and mission impact.**	2.B.1.a. Conduct S/CI oversight and prevention of S/CI entering the DOE supply chain.	This change merely removes redundant language. The Order already requires the QAP, which includes S/CI processes, to apply a graded approach.					
3.2.b. Identify the position responsible for **S/CI activities** and for serving as a point of contact **with the Office of Health, Safety, and Security.**	2.B.1.b. Identify the position responsible for **prevention, detection, control, reporting, and appropriate disposition of S/CI** and for serving as a point of contact.	N/A – No material changes to language or intent					

3.2.d.(4) inspecting inventory and storage areas **to identify, control, and disposition for S/CIs**.	2.B.1.c. Inspect inventory and storage areas **for S/CIs on a defined recurring basis**.						
3.2.f. **Conduct engineering evaluations to be used in the disposition of** identified S/CIs installed **in safety applications/systems or in applications that** create potential hazards.	2.B.1.d. **Develop processes for inspection, identification, evaluation, and disposition of** installed S/CIs that may present potential hazards.						
3.2.g. **Perform the evaluation to** determine whether S/CIs installed in non-safety applications pose potential safety hazards or may remain in place. Disposition S/CIs identified during routine maintenance and/or inspections to prevent future use in these applications.	2.B.1.d. **During routine evaluations (e.g., maintenance and/or inspections)** determine whether S/CIs are installed.						
3.2.f. Evaluations must consider potential risks to the environment, the public and workers along with a cost/benefit impact, and a schedule for replacement (**if required**).	2.B.1.d. Evaluations must consider potential risks to the environment, the public and workers along with a cost/benefit impact, and a schedule for replacement (**if appropriate**).	Changed language merely clarifies the original intent of the Order.					
(none)	2.B.1.d. **Clearly mark S/CIs that remain in use.**						
3.2.c. Provide for training **and informing** managers, supervisors, and workers on S/CI processes and controls (including prevention, detection, and disposition of S/CIs).	2.B.1.e. Provide training for managers, supervisors, and workers on Suspect/Counterfeit Items (S/CI) processes and controls (including prevention, detection, and disposition) **as appropriate.**						
3.2.d. Prevent introduction of S/CIs into DOE work by— 3.2.d.(1) engineering involvement: 3.2.d.(1)(a) in the development of procurement specifications; 3.2.d.(1)(b) during inspection and testing; and 3.2.d.(1)(c) when maintaining, replacing, or modifying equipment;		N/A – content does not exist in DOE O 414.1E					

3.2.d.(2) identifying and placing technical and QA requirements in procurement specifications;		N/A – content does not exist in DOE O 414.1E					
3.2.d.(3) accepting only those items that comply with procurement specifications, consensus standards, and commonly accepted industry practices; and		N/A – content does not exist in DOE O 414.1E					
3.2.e. Include processes for inspection, identification, evaluation, and disposition of S/CIs that have been installed in safety applications1 and other applications that create potential hazards. Also address the use of supporting engineering evaluations for acceptance of installed S/CI as well as marking to prevent future reuse. 3.2.e.1 Safety applications are those whose failure could adversely affect the environment, safety, or health of the public or workers. This term includes safety systems in nuclear facilities (see 10 C.F.R. § 830.3).		N/A – content does not exist in DOE O 414.1E					
3.2.i. Collect, maintain, disseminate, and use the most accurate, up to date **information on S/CIs and suppliers**. Sources are identified on the DOE S/CI website (http://www.hss.energy.gov/sesa/corporatesafety/sci/).	2.B.1.f. S/CI processes must include provisions for the collection, dissemination and use of the most accurate, up to date **S/CI information**.	Changed language provides more flexibility.					
3.4. OCCURRENCE REPORTING. S/CIs must be reported in accordance with	2.B.1.g. Include applicable provisions for S/CI reporting: 2.B.1.g. (1) **DOE O 210.2A, *DOE Corporate Operating Experience Program*;**						
3.2.h. **Report to the DOE Inspector General per paragraph 3. below**, and DOE O 221.1, *Reporting Fraud, Waste, and Abuse to the Office of Inspector General*, current version.	2.B.1.g. (2) DOE O 221.1B, *Reporting Fraud, Waste and Abuse to the Office of Inspector General*; and	N/A – No material changes to language or intent					

DOE O 232.2, *Occurrence Reporting and Processing of Operations Information*, current version.	2.B.1.g. (3) DOE O 232.2A, *Occurrence Reporting and Processing of Operations Information*.	N/A – No material changes to language or intent					
3.2.j. Conduct trend analyses for use in improving the S/CI prevention process. Note: DOE O 210.2, *DOE Corporate Operating Experience Program*, current version, requires review of existing lessons learned reports and submittal of new lessons learned reports for use in improving the S/CI prevention process.	(removed)	N/A – content does not exist in DOE O 414.1E					
3.3. INSPECTOR GENERAL. Contact the DOE Inspector General (IG), before destroying or disposing of S/CIs and corresponding documentation, **to allow the IG to determine whether the items and documentation need to be retained for criminal investigation or litigation.**	2.B.1.h. Coordinate with the DOE Inspector General's Office (IG) before destroying or disposing of S/CIs and corresponding documentation.	N/A – No material changes to language or intent					

2.C. PART C – SOFTWARE QUALITY ASSURANCE

Crosswalk – Contractor Requirements Document – DOE O 414.1E, dated 12/18/2024		**Possibly helpful observations (SNL)**					
DOE O 414.1D (LtdChg 2)	**DOE O 414.1E**						
4. Attachment 4 **SAFETY** SOFTWARE QUALITY ASSURANCE **REQUIREMENTS FOR NUCLEAR FACILITIES**	2.C. Part C – Software Quality Assurance						
4. This attachment provides information and/or requirements associated with DOE O 414.1D	(removed)	N/A – content does not exist					

and is applicable to contracts in which the associated CRD (Attachment 1) is inserted.		in DOE O 414.1E					
4.1. PURPOSE. 4.1.a. Prescribe the safety software quality assurance (SSQA) requirements for DOE nuclear facilities. 4.1.b. Software, other than safety software as defined in this Order, is not subject to requirements in this Attachment1. 4.1.b.1 Example: Software used solely for consequence assessment purposes in establishing the technical basis of an emergency program or during emergency response is not considered safety software.	(removed)	N/A – content does not exist in DOE O 414.1E					
4.2. REQUIREMENTS. 4.2.a. Safety software must be acquired, developed and implemented using ASME NQA-1-2008 with the NQA-1a-2009 addenda (or a later edition), *Quality Assurance Requirements for Nuclear Facility Applications*, Part I and Subpart 2.7, or other national or international consensus standards that provide an equivalent level of quality assurance requirements as NQA-1-2008.	(removed)	N/A – content does not exist in DOE O 414.1E					
(none)	**2.C. Processes for software quality assurance must be identified, established, and implemented within the QAP.**						
4.2.a.(3) Establish and document grading levels for safety software using the graded approach.	**2.C.1. The graded approach must be applied to the selection, management, control, documentation, and implementation of all software (including software systems and subsystems) through the QAP.**						

(none)	**2.C.1.a. Applicable requirements in this Attachment apply to all software using the graded approach.**						
4.2.a.(3) **Grading levels** must be submitted to and approved by the responsible DOE approval authority.	2.C.1.b. **The basis for the graded approach used for software** must be documented and submitted to/approved by DOE.						
4.2.a. DOE-approved QAPs applicable to safety software based on requirements from DOE O 414.1C are acceptable.	(removed)	N/A – content does not exist in DOE O 414.1E					
4.2.a.(1) **Involve the facility design authority, as applicable, in: the identification of; requirements specification; acquisition; design; development; verification and validation (including inspection and testing); configuration management; maintenance; and, retirement**.	2.C.2. **Software must be documented, managed, and controlled throughout the software's lifecycle.**						
4.2.a. The standards used must be specified by the user and approved by the designated DOE approval authority.	**2.C.2.** Appropriate national or international software engineering consensus standard(s) must be used**, unless contrary to law or otherwise impractical**[2], as approved by the DOE QA Approval Authority. **The consensus standards could include combinations of standards (e.g., IEEE, NIST, ANS, etc.) or other software engineering standard(s).** **2.C.2. 2 ''National Technology Transfer and Advancement Act of 1995, Pub. L. No. 104-113**						
4.2.a. Management of safety software must include the following elements. **4.2.a.(4) Using the consensus standard selected and the grading levels established and approved above, select and implement applicable SSQA work activities from the list below.** **4.2.a.(4)(a) Software project management**	(removed)	N/A – content does not exist in DOE O 414.1E					

and quality planning **4.2.a.(4)(b) Software risk management** **4.2.a.(4)(c) Software configuration management** **4.2.a.(4)(d) Procurement and supplier management** **4.2.a.(4)(e) Software requirements identification and management** **4.2.a.(4)(f) Software design and implementation** **4.2.a.(4)(g) Software safety analysis and safety design methods** **4.2.a.(4)(h) Software verification and validation** **4.2.a.(4)(i) Problem reporting and corrective action** **4.2.a.(4)(j) Training of personnel in the design, development, use, and evaluation of safety software**							
4.2.a.(2) Identify, document, control and maintain safety software inventory. The inventory entries must include at a minimum the following: **software description;** **software name;** **version identifier;** **safety software designation (e.g., safety system software, safety and hazard analysis software and design software, safety management and administrative controls software);** **grade level designation;**	**2.C.3. The QAPD must define the kinds of software that require tracking/inventory beyond typical software practices. As a minimum, this tracking must include (1) software important to mission accomplishment and (2)** software related to nuclear safety (e.g., safety basis analysis software used for control selection, software used to determine limits for emergency management, and software used in TSR implementation) **as agreed to by the DOE QA Approval Authority.**						

specific nuclear facility application used; and, the responsible individual.							