



STANFORD UNIVERSITY
SLAC National Accelerator Laboratory
Operated by Stanford University for the U.S. Department of Energy



[DOE Order 420.2E, Safety of Accelerators \(08/05/2026\)](#)
Site Compliance Plan (09/15/2026)

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Introduction

This Site Compliance Plan (SCP):

- a) corresponds with the version of the DOE Directive listed in the Prime Contract,
- b) states how the Laboratory complies with applicable requirements as tailored to the risks at the Laboratory, and
- c) documents DOE-approved methods of compliance for applicable requirements and that there are no recurring deliverables*.

Impact on the Contract:

Under the SCP, sections of the CRD are incorporated into the Contract as-is, unless the SCP indicates that a section or portion thereof is inapplicable, or the section has been changed. Thus, for example, if “in compliance” is listed next to a CRD section, that section is incorporated into the Contract as-is. However, where an SCP indicates that a section or portion thereof is inapplicable, the section or portion thereof is excluded from the Contract. In addition, where a section or portion thereof is applicable, but changes to the section have been agreed by the Parties, the section, as modified by the Parties, shall be incorporated into the Contract.

This SCP also clarifies SLAC’s interpretation of the requirements, memorializes the Parties’ agreement on how SLAC will comply with sections of the CRD (whether or not modified) and identifies the Laboratory programs and processes established to fulfill the respective requirements.



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Attachment 1 – Contractor Requirements Document

The table below identifies the applicable CRD requirements, compliance status, and SLAC’s method of compliance.

§	Requirements from Attachment 1 – CRD	Compliance Status	Method of Compliance
	This Contractor Requirements Document (CRD) sets forth requirements that apply to contractors whose contracts include this CRD. Regardless of who performs the work, the contractor is responsible for complying with the requirements of this CRD. The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractor’s compliance with the requirements and the safe performance of work. In addition to the requirements set forth in this CRD, Attachment 2, Definitions, to DOE O 420.2E, Safety of Accelerators, is referenced in and made a part of this CRD and provides definitions and information applicable to contracts in which this CRD is inserted. The requirements in this CRD apply to all accelerators and their operations and all facilities that transition into operating accelerators.	In Compliance	The majority of the compliance to the Order is found in the following document: Conduct of Accelerator Facility Operations, (CAFO): CACM-2019-059-R003, Effective Date July 13, 2023.
1	EXEMPTIONS/EQUIVALENCIES. Requests for exemptions and equivalencies not listed below must be processed in accordance with DOE O 251.1, Departmental Directives Program, current version. The contractor must establish a periodic onsite validation process to ensure accelerators and devices granted exemptions or equivalencies through DOE O 251.1 continue to be operated under the conditions of the approved exemption or equivalency.	In Compliance	No exemptions or equivalencies are being requested per DOE Order 251.1. A periodic onsite validation process will be established for accelerators and devices granted exemptions or equivalencies under CRD Section 1. The process is documented in the Radiation Generating Devices (RGD) Program Manual FO-035. The RGD program is reviewed as part of the triennial self-assessment of SLAC Radiation Protection Program (RPP). The majority of the compliance to the Order is found in the following document: Conduct of Accelerator Facility Operations, (CAFO): CACM-2019-059-R003, Effective Date July 13, 2023.



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1.a	Exemption. Devices operated in accordance with 10 CFR § 34, Licenses for Industrial Radiography and Radiation Safety Requirements for Industrial Radiographic Operations, are exempt from requirements in Section 2 of this CRD.	N/A	N/A; No exemption is being requested.
1.b	Exemption. NNSA nuclear weapons designed Neutron Generators are exempt from requirements in section 2.a of this CRD.	N/A	SLAC is not an NNSA laboratory
1.c	Exemption. Accelerators with operating energy of less than or equal to 10 MeV or accelerators whose hazards can be safely managed under the provisions of 10 CFR § 835 and § 851 that are non-complex and that produce only local work area impacts are exempt from requirements in Section 2 of this CRD. Examples of such facilities include: (1) Commercially available equipment including, but not limited to, electron microscopes, ion implant devices, and x-ray generators. (2) Neutron generators (accelerating potential below 600 keV). (3) A room-sized accelerator with an active safety system and limited entry into the hazardous area.	In Compliance	Devices in the 1.c category are managed under the SLAC Radiological Control Manual (RCM) and Radiation Generating Devices (RGD) programs, which comply with 10 CFR Part 835, Occupational Radiation Protection regulation.
1.d	Contractors who manage accelerators and their operations with the potential for inadvertent criticality must implement a DOE-approved criticality safety program in accordance with DOE O 420.1, Facility Safety, current version, in addition to the requirements of this CRD. This requirement cannot be exempted under the provisions of section 3.c of DOE O 420.2E, Safety of Accelerators, or this CRD.	N/A	Accelerator operations and current experimental programs at SLAC do not involve, use, and are not capable of creating sufficient inventory of fissionable material to create the potential for inadvertent criticality.
2.	Program Elements		



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2.a	Contractors that manage accelerators under this Order must establish the following program elements prior to commissioning and routine operations: (1) A Safety Assessment Document (SAD); (2) A DOE approved Accelerator Safety Envelope (ASE); (3) An Unreviewed Safety Issue (USI) Process; and (4) An Accelerator Readiness Review (ARR) process.	In Compliance	SLAC maintains the Conduct of Accelerator Facility Operations (CAFO) policy which articulates the program elements. Each of these elements have been documented with approved programmatic processes.
2.b	Contractors that manage accelerators under this Order must: (1) Establish a current listing/inventory of accelerators managed under this Order (2) Establish process(es) to periodically review program elements and update them as appropriate.	In Compliance	SLAC maintains an inventory of the current accelerators managed under this order. SLAC has an established process for the periodic review of the program elements to ensure consistency to the order and SLAC policy.
2.c	Accelerator Safety Envelope (ASE). The ASE is documented set of verifiable physical and administrative requirements, bounding conditions, and credited controls that ensure safe operation and address accelerator specific hazards and risks. (1) The ASE, and any updates or amendment to the approved ASE, must be submitted to the DOE Field Element Manager for approval. (2) Any activity violating the ASE must be terminated immediately and be put in a safe and stable configuration. Affected operations must be terminated immediately and put in a safe and stable configuration for discovered	In Compliance	ASEs for operating accelerators are in compliance. The DOE Field Element Manager approves the restart of any activity or affected operations after a DOE-mandated shutdown because of an ASE violation.



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	conditions that create or reveal an ASE violation. The DOE Field Element Manager must approve the restart of any activity or affected operations after a DOE-mandated shutdown because of an ASE violation.		
2.d	Safety Assessment Document. The purpose of the SAD is to provide a description of the facility, an analysis of accelerator-specific safety hazards, and necessary controls to eliminate or mitigate those hazards such that associated risks are clearly understood. All hazards at an accelerator fall within two categories: (1) hazards that are safely managed by other applicable safety and health programs and/or processes; or (2) accelerator-specific hazards that are analyzed and safely managed by the SAD and provisions of the ASE. The amount of detail provided and the depth of analysis must be tailored to be commensurate with the magnitude and types of hazards present and the complexity of the facility. The SAD, which represents the technical basis for the bounding conditions and controls in the ASE, must be maintained so it reflects current hazards and controls. The contractor must notify the DOE Field Element Manager, or designee, when the SAD is revised and approved. The SAD must:	In Compliance	SLAC maintains Safety Assessment Documents (SADs) for the operation of its accelerators in compliance with DOE order 420.2E. This purpose and content of SADs are described in the CAFO in Chapter 4 and maintained by SLAC. SLAC is responsible for notification of changes being transmitted to the DOE field Element Manager.
2.d.(1)	Identify hazards at the accelerator facility and determine if each hazard requires analysis as an accelerator-specific hazard. Non-accelerator-specific hazards must be evaluated to determine if they could serve as initiators or	In Compliance	See 2.d



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	contributors to accelerator-specific hazards. (a) Hazards from radiation and residual radioactivity associated with beam operations must be evaluated for onsite and offsite impacts from routine operations and credible accidents as appropriate. (b) Evaluation of radioactive material to determine if it is an accelerator-specific hazard must consider direct radiation, contamination, and airborne dispersion as appropriate.		
2.d.(2)	Analyze accelerator specific hazards, including initiators or contributors determined by section 2.d.(1), and identify necessary controls to eliminate or mitigate hazards to workers, the public, and the environment. Provide a description of uncontrolled risk (i.e., without mitigation) and risk with controls in place associated with accelerators and their operations;	In Compliance	See 2.d
2.d.(3)	Provide a description of controls used to mitigate accelerator specific hazards. This must include: (a) Detailed descriptions of credited controls (e.g., interlocks and physical barriers) that are stated in the ASE. (b) Descriptions, as necessary, of administrative requirements (e.g., training, procedures), and bounding conditions that are stated in the ASE. (c) Descriptions of additional controls taken to eliminate or mitigate hazards to workers, the public, and the environment, as appropriate.	In Compliance	See 2.d



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2.d.(4)	Include or reference a description of the accelerator and accelerator facility function, location, and management organization in addition to details of major accelerator and accelerator facility components and their operation.	In Compliance	See 2.d
2.e	Unreviewed Safety Issue Process. The USI process evaluates proposed activities or discovered conditions that introduce new or previously unreviewed accelerator-specific hazards to ensure controls are in place to prevent or mitigate hazards as described in the current SAD and approved ASE. The term “activities” includes modifications, temporary changes, permanent changes, and new activities. The contractor must document how the USI process is implemented, identify how the requirements listed below are addressed, and notify the DOE Field Element Manager, or designee, when the USI process is revised.	In Compliance	SLAC maintains an Unreviewed Safety Issues Process. This USI process is compliant with this order and is described in the CAFO in Chapter 12 and includes notification to the DOE Field Element Manager or designee of revisions.
2.e.(1)	The USI process must: (a) Evaluate whether adequate controls are in place to prevent or mitigate accelerator-specific hazards. (b) Identify activities expected to exceed ASE bounding conditions and ensure such activities are evaluated through the USI process prior to implementation. (c) Once an USI has been appropriately reviewed, the issue becomes a Reviewed Safety Issue and may be considered as an addendum to the SAD.	In Compliance	See 2.e
2.e.(2)	For a proposed activity, DOE approval is required if the USI Process determines that:	In Compliance	See 2.e



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	(a) It involves accelerator specific hazards that are not adequately addressed by the approved ASE prior to implementation of the proposed activity or (b) It is expected to exceed the bounding conditions of the ASE.		
2.e.(3)	If conditions are discovered that introduce accelerator specific hazards that are not adequately addressed by the approved ASE: (a) Impacted/affected operations must be suspended immediately and put in a safe and stable configuration. . (b) DOE must approve activities that are not adequately addressed by the approved ASE.	In Compliance	See 2.e
2.f	Accelerator Readiness Reviews. ARR must be performed before commissioning and/or routine operation. A single ARR may be conducted prior to commissioning that addresses both commissioning and routine operations. As part of the ARR process, the contractor must ensure an appropriately comprehensive and independent ARR has been conducted, identified pre-start issues have been resolved, commissioning activities required for safe operations have been completed as appropriate, and the following are in place: (1) Hardware, personnel, and procedures adequate to support the proposed accelerator activities safely, consistent with the SAD and approved ASE. (2) A Configuration Management Program that addresses accelerator safety; and (3) Appropriate administrative processes related to	In Compliance	SLAC performs Independent Accelerator Readiness Reviews prior to commissioning and/or routine operations. The ARR process is described in the CAFO in Chapter 14.



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	accelerator safety (training, USI process, etc.).		
2.g	The contractor must inform the DOE Field Element Manager prior to: (1) The start of commissioning activities; and (2) The start of routine operations.	In Compliance	Per CAFO Chapter 14, Accelerator Readiness Reviews (ARR) must be held before DOE Field Element Manager notification prior to the start of commissioning activities; and start of routine operations.
2.h	Decommissioning Activities. Contractors who manage accelerators and their operations under this CRD must inform the DOE Field Element Manager prior to the start of accelerator decommissioning activities.	In Compliance	SLAC will inform the DOE Field Element Manager prior to the start of accelerator decommissioning activities.



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Definitions

This Attachment provides definitions of terms used in DOE O 420.2E, *Safety of Accelerators*, as well as information applicable to contracts in which the associated CRD (Attachment 1 to DOE O 420.2E, *Safety of Accelerators*) is inserted.

1. **Accelerator**: A device and its components employing electrostatic or electromagnetic fields to impart kinetic energy to molecular, atomic, or sub-atomic particles to intentionally produce an accelerated particle beam and capable of creating a radiological area as defined by 10 CFR Part 835, Occupational Radiation Protection. Accelerator components include injectors, targets, beam dumps, detectors, experimental enclosures, accelerator enclosures, experimental areas, and experimental apparatus utilizing the accelerator. The accelerator also includes associated support and test facilities, equipment, systems, and utilities necessary to operate the accelerator or utilize the accelerated beam.
2. **Accelerator Facility**: The accelerator, plant, buildings, structures, and equipment supporting the accelerator and its operations that are under the direct control of the contractor.
3. **Accelerator Operations**: Activities within the accelerator facility that, over the lifecycle of the facility, support 1) production or utilization of accelerator beams; 2) research and experimental activities utilizing accelerator beams; 3) handling, storage and analysis of accelerator induced radioactive components and materials within the accelerator facility boundary; 4) receipt, preparation, assembly, inspection, and installation of samples into the accelerator beam; or 5) removal, disassembly, handling, analysis, and storage for radioactive dose minimization to meet the definition of ALARA in 10 CFR Part 835, *Occupational Radiation Protection*, or transportation requirements, and packaging of samples after use in the accelerator beam. Accelerator Operations excludes radioisotope processing activities that are not required to operate or maintain the accelerator.
4. **Accelerator Readiness Review (ARR)**: A structured method for verifying that hardware, personnel, and procedures associated with commissioning or routine operations are ready to permit the activity to be undertaken safely.
5. **Accelerator Safety Envelope (ASE)**: A documented set of verifiable physical and administrative requirements, bounding conditions, and credited controls that ensure safe operation and address accelerator specific hazards and risks.
6. **Commissioning**: A phase of an accelerator facility operation that is typically used to conduct initial beam testing and/or verify design specifications. Commissioning periods may be tailored to the needs of each facility and there may be great variations in their duration, breadth, and formality, but in all cases, the activities will be bounded by an ASE.
7. **Credited Controls**: Controls determined through Safety Analysis to be essential for safe operation directly related to the protection of workers, the public, and the environment.
8. **DOE Element**: First-tier organizations at DOE/NNSA HQ and in the field as listed in the Correspondence Style Guide, Office of the Executive Secretariat.
9. **DOE Field Element Manager**: The manager having overall responsibility for a DOE field element including execution of oversight policy implementation. The Field Element Manager directs activities of DOE/NNSA field or site offices and has line accountability for all site program, project execution, and contract management.
10. **DOE Program Secretarial Officer (PSO)**: An Assistant Secretary, Office Director, Head of Program Element, or NNSA Deputy Administrator to whom designated field offices directly report and who has overall landlord responsibilities for the assigned direct reporting elements.



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11. Operating Energy: the operating energy of an accelerator is the nominal energy of the accelerated particle beam that the accelerator is being used to produce. It does not include the theoretical accelerating potential of a device and does not include the energy of secondary particles that may be produced through interactions of the accelerated particle beam.
12. Radiation: Ionizing radiation, including the accelerated particle beam and the radiation produced when the beam interacts with matter or changes direction. Radiation includes alpha particles, beta particles, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions.
13. Radioisotope Processing: Chemical, thermal, or physical actions taken to separate, isolate, refine, or enrich specific isotopes of a chemical element.
14. Residual Radioactivity: Radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from the accelerator or accelerator operations.
15. Reviewed Safety Issue: The outcome of the evaluation and determination phase of the USI Process.
16. Risk: A quantitative or qualitative expression of possible harm, which considers both the probability that a hazard will cause harm and the amount of harm; or, alternatively, an estimate of the probability of occurrence of a hazard-related incident and the severity of the consequence associated with the incident.
17. Safety Analysis: A documented process to systematically identify the hazards of a given operation; including a description and analyses of the adequacy of measures taken to eliminate, control, or mitigate the hazards and risks of normal operation; and identification and analyses of potential accidents and their associated risks.
18. Safety Assessment Document (SAD): A document containing the results of a Safety Analysis for an accelerator or accelerator facility pertinent to understanding the risks to workers, the public, and the environment of operating the accelerator.
19. Unreviewed Safety Issue (USI): An activity or discovered condition with accelerator specific hazards that have yet to be evaluated to determine if the activity or discovered condition introduces accelerator specific hazards that are not adequately addressed by the current SAD and approved ASE.
20. USI Process: The process or methodology used to evaluate/review USIs to determine if the activity or discovered condition is adequately addressed by the current SAD and approved ASE.

Deliverables

No deliverables were identified



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Concurrence

Name	Title	Signature
John Connolly	Deputy Laboratory Director, Operations - SLAC	
Charina Rockwell	Director, Operations, DOE-SSO	CHARINA ROCKWELL Digitally signed by CHARINA ROCKWELL Date: 2026.09.17 11:15:02 -07'00'
William W. Wheeler	Acting, DOE Field Element Manager, DOE-SSO	

Revision History

Revision	Revision Date	Summary of Change(s)
RO	09/15/2026	Original release.