STANFORD UNIVERSITY

SLAC National Accelerator Laboratory

Operated by Stanford University for the U.S. Department of Energy

DOE Order 420.1C, Chg. 3 (LtdChg) - Facility Safety (11/14/2019)

Site Compliance Plan (Final Rev, 1/12/2021)

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Introduction

This Site Compliance Plan (SCP):

a) corresponds with the version of the DOE Order on Occurrence Reporting and Processing of Operations Information listed in the Prime Contract,
b) states how the Laboratory complies with applicable requirements as tailored to the risks at the Laboratory,
c) identifies CRD sections that do not apply, and
d) documents DOE-approved methods of compliance for applicable requirements and 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. The SCP also memorializes the Parties' agreement on how SLAC will comply with sections of the CRD (whether or not modified).

Attachment 1: Contractor Requirements Document (CRD)

This contractor requirements document (CRD) includes requirements outlined in Attachments 2 and 3 of Department of Energy (DOE) Order (O) 420.1C, Facility Safety, referenced in and made a part of this CRD, and which provides program requirements and/or information applicable to contracts in which this CRD is inserted.

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Attachment 1: CRD Section and Tasks	Compliance Status	Method of Compliance	Deliverables*			
			Item	Frequency	Due Date(s)	Recipient (e.g., BASO)
1. General Requirements						
a. This CRD establishes facility safety requirements for design, construction, operation, management, decontamination, decommissioning and demolition of DOE sites or facilities. Regardless of the performer of the work, the contractors are responsible for complying with the requirements of this CRD. The contractors are responsible for flowing down the requirements of this CRD to subcontractors at any tier, to the extent necessary, to ensure the contractors' compliance with the requirements.	There are no specific tasks from this CRD section.					
b. Contractors must satisfy the requirements set forth in Attachments 2 and 3 of DOE O 420.1C.	See Attachments 2 and 3 of DOE 420.1C.					
c. For design and construction activities, contractors must identify the applicable industry codes and standards, including the *International Building Code* (IBC), and the applicable DOE requirements and technical standards. If approved by the responsible field element manager, state, regional, and local building codes may be used in lieu of the IBC upon contractor submission of a report that demonstrates that implementation of the substituted code for the specific application will meet or exceed the level of protection that would have been provided by the IBC. Additionally, DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* dated 11-29-10, requires nuclear projects to establish and maintain a Code of Record (COR) early in project design for identifying applicable industry codes and standards..	In compliance with approved changes.	SLAC adopts the California Building and Fire Codes in synchronization with the State of California. Compliance is monitored by ESH Code Compliance and AHJ Services through the Building Inspection Office (BIO). The BIO provides a range of review and acceptance services per the approved variance of 10CFR851 and federal contract requirements for all new construction projects from conceptual design through project completion. California Building Codes are based on the International Code Council (ICC) Codes.	n/a	n/a	n/a	n/a
Additionally, DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets,* dated 11-29-10, requires nuclear projects to establish and maintain a Code of Record (COR)	This section not applicable to SLAC, therefore it is not included.					

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early in project design for identifying applicable industry codes and standards.						
d. Contractors must satisfy the requirements (i.e., mandatory statements) in DOE technical standards and industry codes and standards identified as applicable, unless relief is approved in accordance with Section 2, below.	See Section 2 below.					
e. When the DOE-STD-3009 methodology is used to satisfy 10 Code of Federal Regulations (C.F.R.) Part 830, Nuclear Safety Management, safety basis requirements, DOE-STD-3009-2014, Preparation of Nonreactor Nuclear Facility Documented Safety Analysis, must be used for new DOE non-reactor nuclear facilities and major modifications to existing DOE non-reactor nuclear facilities. Note: for such major modifications to existing non-reactor nuclear facilities, the appropriate Secretarial Officer, with concurrence by the applicable Central Technical Authority, may approve use of DOE-STD-3009-94.	DOE-STD-3009 does not apply to the operation of SLAC The SLAC process to develop and request DOE AHJ approval for equivalencies and exemptions to requirements is addressed in Attachment 2 requirements below, See Section II.3.d(2)(c).					
f. DOE-STD-3009-2014 must be used for existing DOE non-reactor nuclear facilities that use the DOE-STD-3009 method to satisfy 10 C.F.R. 830 requirements when those facilities have mitigated off-site dose estimates greater than 25 rem.	DOE-STD-3009 does not apply to the operation of SLAC					
2. Relief from Requirements, Codes and Standards						
a. Requests for equivalencies and exemptions to the requirements of this attachment are processed in accordance with DOE O 251.1C, Departmental Directives Program, dated 01-15-09. For such equivalencies and exemptions, DOE O 251.1C requires approval, in consultation with the Office of Primary Interest, by the program secretarial officer or designee, or in the case of NNSA, by the administrator or designee. Requests for equivalencies and exemptions must be provided to the responsible contracting officer for further processing. This includes exemptions to applicable	In compliance with approved changes.	The SLAC process to develop and request DOE AHJ approval for equivalencies and exemptions to requirements is addressed in Attachment 2 requirements below, See Section II.3.d(2)(c).	n/a	n/a	n/a	n/a

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requirements in DOE technical standards and industry codes and standards required by DOE O 420.1C.						
b. Equivalencies to DOE technical standards and industry codes and standards determined to be applicable to the facility design or operations must demonstrate an equivalent level of safety (i.e., meets or exceeds the level of protection) and be approved by the DOE field element.	In compliance	SLAC complies with all applicable national consensus industry codes and standards, and the California Building Code (CBC) and California Fire Code (CFC). See Attachment 2, Section 3.d .(2)(c) regarding processing of Alternatives.	n/a	n/a	n/a	n/a
3. References. Attachment 4 of DOE O 420.1C provides a list of reference documents: rules, directives, guidance, DOE technical standards, and industry codes and standards. [There are no specific tasks listed in this CRD section.]						

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Attachment 2: Facility Safety Requirements

This attachment provides information and/or requirements associated with the Department of Energy (DOE) Order O 420.1C, Facility Safety, as well as information and/or requirements applicable to contracts into which the associated Contractor Requirements Document (CRD), (see Attachment 1 of DOE O 420.1C) is inserted.

Attachment 2: Facility Safety Requirements Section and Tasks	Compliance Status	Method of Compliance	Deliverables*			
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Chapter I. Nuclear Safety Design Criteria (N/A)						
OBJECTIVE: To establish requirements for safety design of DOE hazard category 1, 2, and 3 nuclear facilities to support implementation of DOE Policy (P) 420.1, Department of Energy Nuclear Safety Policy, dated 02-08-11	Not applicable. This Chapter does not apply to SLAC.					
Chapter II. Fire Protection						
1. OBJECTIVE. To establish requirements for comprehensive fire protection programs for DOE facilities and emergency response organizations to: a. Minimize the likelihood of occurrence of a fire-related event; b. Minimize the consequence of a fire-related event affecting the public, workers, environment, property and missions; and, c. Provide a level of safety protection consistent with the "highly protected risk" class of industrial risks.	Outlined in sections below.					
2. APPLICABILITY. This chapter applies to organizations that have responsibility for the design, construction, maintenance, or operation of government-owned or government-leased facilities and on-site contractor-leased facilities used for DOE mission purposes. For leased facilities that are not nuclear hazard category 1, 2, or 3 facilities, the design requirements of Section 3.c of this chapter apply to the extent determined by the field element. (Note: DOE-STD-1066-2016, Fire Protection, provides guidance on a graded approach to fire protection for leased facilities.)	Outlined in sections below.					

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3. REQUIREMENTS						
a. General Fire Protection Program Requirements						
(1) Policy Statement. A policy must be established that affirms the contractor's commitment to provide a comprehensive fire protection and emergency response program that meets the requirements of this chapter, related DOE directives, and other applicable requirements.	In compliance	Section 1 of Chapter 12 of the ESH Manual affirms SLAC's commitment to provide a comprehensive fire protection and suppression program consistent with a highly protected risk property. Due to its location in the ESH Manual, this statement has the force of policy. DOE O 420.1 is cited in Section 6.1 of Chapter 12, and references to related DOE Directives and other applicable requirements are addressed in Sections 6.1 and 6.2.	n/a	n/a	n/a	n/a
(2) Codes and Standards. The applicable building code and National Fire Protection Association (NFPA) codes and standards must be identified in the fire protection and emergency response programs. (Note: see Attachment 1, Section 2 for obtaining equivalencies and exemptions to the applicable codes and standards)..	In compliance	See 3.a.(1) above.	n/a	n/a	n/a	n/a
(a) Facilities, and major modifications thereto, must be constructed to meet applicable codes and standards that are in effect when design criteria are approved (otherwise known as the code of record, or COR). Other facility changes must meet the most recent applicable codes and standards to the extent determined by the authority having jurisdiction (AHJ).	In compliance	Code of record requirements are established and tracked by the Conventional Project and Experimental Project Review Processes (ESH Manual, Chapter 1).	n/a	n/a	n/a	n/a
(b) Provisions of subsequent editions of codes or standards (promulgated after the COR is established) are mandatory only to the extent that they are explicitly stated to be applicable to existing facilities.	In compliance	Requirements explicitly applicable to existing facilities (e.g. NFPA 101) are applied per the most current edition. Building and Fire Code editions are adopted in synchronization with the State of California. NFPA documents applicable to existing facilities (specifically, NFPA 101) are adopted as of January 1st of the year of the code edition revision.	n/a	n/a	n/a	n/a

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(c) Conflicts between DOE O 420.1C, NFPA codes and standards, and the applicable building code must be resolved as follows:	In compliance	See (c)1 and (c)2 below.	n/a	n/a	n/a	n/a
1. Requirements of DOE O 420.1C take precedence over all NFPA and building code requirements and are subject to the relief requirements of DOE O 420.1C.	In compliance	SLAC complies with the requirements and procedures of the contractual portions of DOE Order 420.1C as outlined in this Implementation Plan. SLAC follows the requirements of DOE O 420.1C if relief is needed from one of its requirements.	n/a	n/a	n/a	n/a
2. Conflicts between NFPA requirements and the applicable building code requirements are resolved by the head of the field element following consultation with designated building code and fire protection subject matter experts.	In compliance with approved changes	SLAC utilizes an alternatives process with the assistance of the DOE Bay Area Site Office (BASO) to document and resolve conflicts between NFPA and CBC requirements.	n/a	n/a	n/a	n/a
b. Fire Protection Program Administration.						
(1) Documentation. A documented fire protection program that includes the elements and requirements identified in this chapter for design, operations, emergency response, fire analysis and assessments, wildland fire, and specific fire protection program criteria must be developed, implemented, and maintained by the contractor. Contractor must submit this documented fire protection program to the DOE field element for review and approval (note: this may be accomplished in conjunction with submittals required by 10 C. F. R. Part 851, *Worker, Health and Safety Program*).	In compliance	The Fire Protection Program is documented through ESH Manual Chapter 12 for matters relating to the SLAC public. Most required reports identified in this SCP are kept in the SLAC Controlled Document Management System. Other ESH fire protection program documents are kept in drives or SharePoint sites not readily accessed by DOE personnel. SLAC annually submits a consolidated Fire Protection Program Plan for DOE field element review and approval. This submittal contains copies of all pertinent program documentation in readily viewable electronic form (e.g. pdf or jpeg).	Fire Protection Program Plan	Annual	5/31	BASO
(2) Self-Assessments. A documented comprehensive self-assessment of the fire protection program must be performed at least every three years, or at a frequency with appropriate justification approved by the DOE	In compliance	Fire Protection program self-assessments are performed annually, with 1/3 of the primary program topics examined in each year.	n/a	n/a	n/a	n/a

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head of field element.						
c. Design.						
(1) Design Process. A process must be established to ensure that fire protection program requirements are documented and incorporated into plans and specifications for design of new facilities and modifications to existing facilities.	In compliance	The design process is documented in the SLAC Project Review Procedure which is managed by ESH Code Compliance and AHJ Services Group and its associated Building Inspection Office (BIO).	n/a	n/a	n/a	n/a
(2) Protection Thresholds (a) New facilities (non-relocatable) exceeding 5,000 sq. ft. of floor area must be of Type I or Type II construction, as defined in the applicable building codes.	In compliance	Protection threshold requirements are documented in the BIO *Review and Authorization Manual*, a document owned and maintained by ESH Code Compliance and AHJ Services Group.	n/a	n/a	n/a	n/a
(b) Automatic fire suppression systems must be provided throughout new facilities exceeding 5,000 sq. ft. of floor area or where a maximum possible fire loss exceeds $5.9 million (in 20168dollars), unless the NFPA code(s) allow for specific relief within the facility.	In compliance	See c.(2)(a) above.	n/a	n/a	n/a	n/a
(c) Automatic fire suppression systems must be provided throughout facilities in which any of the following conditions exist: 1. where required by safety basis document (for example, to prevent loss of safety functions or provide defense-in-depth); 2. significant life safety hazards; 3. where fire may cause unacceptable mission or program interruption if automatic fire suppression systems are not provided; 4. where a modification to an existing facility would cause the maximum possible fire loss (MPFL) to exceed $5.9 million (in	In compliance	SLAC provides sprinklers for all significant new buildings, including all buildings in excess of 5,000 square feet in area. This requirement is enforced through the SLAC Fire Marshal's Office acting as a component of the BIO design review process.	n/a	n/a	n/a	n/a

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2018 dollars) for the facility; or, 5. where a modification to an existing facility results in facility floor area that exceeds 5,000 sq. ft.						
(d) For property protection, multiple fire protection approaches, such as a fire suppression system and a fire detection and alarm system, must be provided in areas where the MPFL exceeds $177 million (in 2018 dollars) (refer to DOE-STD-1066-2016).	In compliance	SLAC's fire hazard analyses for beamline facilities ensure appropriate adherence to this requirement in accordance with DOE-STD-1066-2016. No other area at SLAC has a Maximum Possible Foreseeable Loss (MPFL) that exceeds $177M. These requirements are overseen by the SLAC Fire Marshal acting in coordination with the BIO facility project review process.	n/a	n/a	n/a	n/a
(e) For property protection, fire areas must be established such that the MPFL for each fire area does not exceed $412 million (in 2018 dollars). Fire area walls or other separation approaches may be used to meet this requirement.	In compliance	See c.(2)(d) above.	n/a	n/a	n/a	n/a
(3) Fire Protection and Life Safety Systems.						
(a) Fire Suppression. The inadvertent operation or failure of fire suppression systems must not result in the loss of function of safety-class or safety-significant systems. (Note: This requirement addresses proper design of the fire suppression system to ensure it does not impact safety systems and is not intended to drive need for redundancy in safety-significant system design.)	n/a	SLAC has no safety-class or safety-significant systems.	n/a	n/a	n/a	n/a
(b) Fire Barriers. Complete fire-rated construction and barriers, commensurate with the applicable codes and/or safety basis requirements, must be provided to isolate hazardous areas and minimize fire spread and loss potential consistent with limits as established in this chapter. Fire barrier locations and construction must be documented.	In compliance	Assurance for new construction is provided through the BIO facility project review process. Locations and construction data for existing facilities are maintained by the Fire Marshal's Office. Inspection and maintenance of fire barriers is provided by the Facilities Architectural Services Group.	n/a	n/a	n/a	n/a

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(c) Fire Detection. Automatic fire detection must be provided to the extent required by applicable industry codes and standards.	In compliance	Assurance is provided through the BIO facility project review process.	n/a	n/a	n/a	n/a
(d) Life Safety. Requirements for life safety and means of egress are provided in 10 C.F.R. Part 851, Worker Health and Safety Program. Other codes and standards, such as the International Building Code, and NFPA 101, Life Safety Code, may also be applicable.	In compliance	Assurance for all new construction is provided through the BIO Project Review Process. Assurance for existing facilities is provided by the Fire Marshal's Office using triennial inspections based on NFPA 101 criteria (the Facility Fire Protection Assessment Program). Also see Section 3.f.(2) below.	n/a	n/a	n/a	n/a
(e) Water Supply and Distribution. A reliable and adequate water supply and distribution system must be provided for fire suppression, as documented through appropriate analysis.	In compliance	SLAC maintains a looped water system with dual site feeds provided from local municipal supply. An analysis of overall water supply is provided in SLAC's internal study of September 2020, which verified that this system fully meets this requirement.	n/a	n/a	n/a	n/a
(f) Emergency Notification. A means to notify responders and building occupants of a fire must be provided (e.g., fire alarm signaling system and/or site-wide mass notification capabilities for major incidents affecting the site).	In compliance	This requirement is overseen by the Fire Marshal's Office. Fire alarm and reporting systems are regularly inspected and maintained by Facilities Fire System Technicians. Assurance for new and modified facilities construction is provided through the ESH Facility Project Review Process.	n/a	n/a	n/a	n/a
d. Operations.						
(1) Criteria and Procedures. Comprehensive, written fire protection criteria and procedures must be established to implement the fire protection program requirements that include: (a) site-specific requirements; (b) staff organization, resources, training, roles and responsibilities; (c) inspection, testing, and maintenance of fire protection systems; (d) use and storage of combustible, flammable, radioactive, and hazardous materials; (e) a "hot-work" control program;	In compliance	Addressed through ESH Chapter 12 and SLAC Fire Marshal's Office procedures, which are located in a SLAC ESH fire protection SharePoint site.	n/a	n/a	n/a	n/a

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(f) identification and tracking of fire protection system impairments; (g) fire prevention measures (e.g., combustible loading, hot-work, and ignition source controls); (h) facility and fire hazard analysis (FHA) assessment programs; (i) design and construction oversight; and, (j) equivalencies, exemptions, modifications, and variances processes.						
(2) Implementation. To ensure effective implementation of these requirements, the following elements must be addressed.						
(a) Staffing. The contractor must ensure it has access to qualified, trained fire protection staff (that includes fire protection engineers, technicians, and firefighting personnel) needed to implement the requirements of this chapter.	In compliance	SLAC uses in-house fire protection staff, contractors and a memorandum of agreement with a neighboring municipal fire district. This is documented in SLAC's Baseline Needs Assessment (BNA).	n/a	n/a	n/a	n/a
(b) Design Review. Documented review of plans, specifications, procedures, and acceptance tests must be conducted by a fire protection engineer (FPE) (Note: A definition for FPE is provided in DOE-STD-1066-2016). A process must be established to oversee fire protection-related activities from conceptual design to final acceptance.	In compliance	Design review is managed through a review and acceptance process owned by the ESH Code Compliance and AHJ Services Group. Responsibilities are shared between the BIO and the SLAC Fire Marshal's Office. The Fire Marshal (an FPE) or the staff FPE oversees all fire protection related activities as part of this process. Reviews are conducted by a SLAC FPE or by a qualified fire prevention specialist under the direct supervision of a SLAC FPE.	n/a	n/a	n/a	n/a
(c) Equivalencies and Exemptions. A process must be established for developing and requesting DOE AHJ approval of fire protection equivalencies and exemptions to fire protection requirements. Records of technical justification must be maintained and reevaluated for appropriateness as activities or operations change.	In compliance	Equivalencies and exemptions are developed by, or under the oversight of, the Fire Marshal's Office and are coordinated closely with the DOE FPE acting as the Bay Area Site Office subject matter expert. Procedures are maintained by the ESH Code Compliance and AHJ Services Group.	n/a	n/a	n/a	n/a
(d) Assigned Authority. If assigned, the contractor must document the level of authority to execute the duties and responsibilities of the AHJ, in	In compliance	AHJ (Fire Marshal) roles and responsibilities are described in ESH Manual, Chapter 12, Section 2.7.	n/a	n/a	n/a	n/a

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accordance with the contractor's overall fire protection and emergency response programs.						
e. Emergency Response. Provide emergency response capabilities, as necessary, to meet site needs as established by the baseline needs assessment (BNA), safety basis requirements, and applicable regulations, codes and standards.	Outlined below.					
(1) Baseline Needs Assessment. A BNA of the fire protection and emergency response organization must be conducted and the BNA must: (a) establish capabilities to provide: (1) effective response to extinguish fires; (2) emergency medical, rescue and hazardous materials response; and, (3) staffing, apparatus, facilities, equipment, training, pre-incident plans, mutual aid, and procedures. (b) reflect applicable requirements of NFPA codes and standards, and DOE direction; (c) be submitted to the DOE field element for approval; (d) be reviewed at least every three years, or whenever a significant new hazard that is not covered by the current BNA is introduced, and be updated as appropriate (Note: If no update is necessary, this result must be documented following the review); and, (e) be incorporated into site emergency plans, FHAs, and safety basis documentation.	In compliance	SLAC submits BNA on a triennial basis for DOE Site Office for approval.	BNA	Triennial	9/30/2023	BASO
(2) Pre-Incident Plans. Pre-incident strategies, plans, and standard operating procedures must be established to enhance the effectiveness of manual fire suppression activities, including areas	In compliance	Pre-incident plans have been established for high value and high occupancy structures. Updates to the plans are tracked as a BNA requirement. Firefighter standard operating procedures are under the control of Menlo Park	n/a	n/a	n/a	n/a

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within or adjacent to, moderator-controlled areas. The criticality safety staff must review pre-incident plans and procedures related to moderator-controlled areas.		Fire Protection District, which provides fire and other emergency response services to SLAC. Standard Operating Procedures for the SLAC Emergency Response Team are maintained by the SLAC Emergency Management Coordinator.				
(3) Manual Fire Suppression Activities. (a) Physical access and appropriate equipment that is accessible for effective manual firefighting intervention must be provided. (b) Procedures governing the use of firefighting water or other neutron moderating materials to suppress fire within, or adjacent to, moderation controlled areas must be established and reviewed by a criticality subject matter expert prior to release. (c) Procedures governing firefighting techniques to be used during deactivation, decontamination, and demolition phases, must be established, when applicable. (d) Where no alternative exists to criticality safety restrictions on the use of water for fire suppression, the need for such restrictions must be fully documented with written technical justification.	In compliance	Equipment for manual fire suppression activities is provided by the Menlo Park Fire Protection District under a Memorandum of Agreement. See BNA for details of firefighting equipment requirements and capabilities.	n/a	n/a	n/a	n/a

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f. Fire Hazard Analyses and Facility Assessments.						
(1) Fire Hazards Analyses. FHAs, using a graded approach, must be conducted for the following cases: (1) all hazard category 1, 2, and 3 nuclear facilities and major modifications thereto; (2)facilities that represent unique fire safety risks; (3) new facilities or modifications to existing facilities with value greater than $177 million (in 2018 dollars) ; and (4) when directed by the responsible DOE authority. The FHAs must be: (a) performed under the direction of an FPE; (b) reviewed every three years by an FPE and revised as appropriate (Note: If no revision is necessary, this result must be documented following the review); (c) revised when− 1. changes to the facility structure or layout, processes, occupancy, safety basis documentation or BNA impacts the analysis in the FHA; 2. a modification to an associated facility or process adds a significant new fire safety risk; or, 3. the periodic (three-year) review identifies the need for changes; (d) integrated into safety basis documentation.	In Compliance	Fire Hazard Analyses are overseen by the SLAC Fire Marshal and conducted in accordance with this requirement.	n/a	n/a	n/a	n/a
(2) Facility Assessments. Fire protection assessments must be conducted: a. annually, or at a frequency with appropriate justification approved by the DOE head of field element, for facilities with a replacement value in excess of $118 million (in 2018 dollars), facilities considered a high hazard, or those in which vital programs are involved, as defined by the responsible DOE authority; and,	In compliance	Buildings addressed by a Fire Hazard Analysis are reviewed annually.	n/a	n/a	n/a	n/a
b. at least every three years, or at a frequency with appropriate justification approved by the DOE	In compliance	Buildings with more than 10 occupants and not covered under Fire Hazard Analyses are	n/a	n/a	n/a	n/a

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head of field element, for remaining low and ordinary hazard facilities.		reviewed for sprinkler system condition and life safety triennially. SLAC also conducts assessments on all remaining low and ordinary hazard facilities every five years per this SCP.				
g. Wildland Fire. An integrated site-wide wildland fire management plan, consistent with the *Federal Wildland Fire Management Policy*, must be developed, provided to DOE Head of Field Element for Approval, and implemented in accordance with the relevant portions of the NFPA 1143, *Standard for Wildland Fire Management,* 2014.	In compliance	SLAC periodically provides a Wildland Fire Management plan at least triennially to DOE Site Office for approval.	n/a	Triennial	5/31	BASO
h. Specific Fire Protection Program Criteria. DOE-STD-1066-2016 provides acceptable methods for implementing the requirements in DOE O 420.1C; other methods may be acceptable. Any alternate approach must provide an equivalent level of safety.	In compliance	SLAC follows DOE-STD-1066-2016 in accordance with DOE-Order 420.1C as outlined in this Implementation Plan. The equivalency process will be used for any alternatives.	n/a	n/a	n/a	n/a
Chapter III. Nuclear Criticality Safety (N/A)						
1. OBJECTIVE. To establish requirements for developing and implementing nuclear criticality safety programs (CSPs) for nuclear facilities and activities, including materials transportation activities, which provide adequate protection to the public, workers, and the environment.	This Chapter does not apply to SLAC, therefore it is not included.					
Chapter IV. Natural Phenomena Hazards Mitigation						
1. OBJECTIVE. To establish requirements for DOE facility design, construction, and operations to protect the public, workers, and the environment from the impact of natural phenomena hazards (NPH) events (e.g., earthquake, wind, flood, lightning, snow and volcanic eruption).	Outlined in sections below.					
2. APPLICABILITY. Requirements in this chapter apply to all government-owned and government-leased nuclear and nonnuclear	Outlined in sections below.					

**Deliverables: Data delivered to DOE or other external agency (e.g., recurring reporting, external database entries)*

DOE Order 420.1C, Chg. 3 (LtdChg) - Facility Safety (11/14/2019)

Site Compliance Plan (Final Rev, 1/12/2021)

Attachment 2: Facility Safety Requirements Section and Tasks	Compliance Status	Method of Compliance	Deliverables*			
			Item	Frequency	Due Date(s)	Recipient (e.g., BASO)
facilities and sites. Design requirements (Sections 3.a, 3.b, and 3.c, below) apply to new facilities, major modifications, and modifications that may be warranted based on periodic NPH assessment and upgrade requirements.						
3. REQUIREMENTS.						
a. General. Facilities must be designed, constructed, maintained, and operated to ensure that SSCs will be able to perform their intended safety functions effectively under the combined effects of NPH and normal loads defined in the applicable building codes contained in facilities' CORs. Nuclear facility safety functions that the SSCs must perform during an NPH must be defined in the facility's safety basis documentation. Safety functions include: (1) confinement/containment of hazardous materials; (2) protection of occupants and co-located workers of the facility and the public; (3) continued operation of essential facilities and equipment; (4) safe shutdown of hazardous facilities and equipment; and, (5) maintenance of personnel access to areas needed for responding to accidents during NPH events.	In compliance	Safety Requirements are included in project-specific Facilities Design Guidance and have been reviewed in accordance with ESH BIO Review and Authorization processes. Preventative maintenance and SLAC's Work Planning and Control procedures ensure safety during operations and maintenance activities.	n/a	n/a	n/a	n/a
b. NPH Design Criteria. All new facilities and major modifications must satisfy the applicable requirements and criteria contained in DOE-STD-1020-2016, *Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities*. (Note: Requirements for non-nuclear facilities are described in Section 2.1 of DOE-STD-1020-2016.)	In compliance	DOE-STD-1020-2016 directs that we use the ASCE/SEI-7 and NFPA 780 as design guidance for our structures. Building and Fire Code editions are adopted in synchronization with the State of California. NFPA documents applicable to existing facilities are adopted as of January 1st of the year of the code edition revision, and are documented in the ESH BIO Review and Authorization Manual.	n/a		n/a	n/a

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Site Compliance Plan (Final Rev, 1/12/2021)

Attachment 2: Facility Safety Requirements Section and Tasks	Compliance Status	Method of Compliance	Deliverables*			
			Item	Frequency	Due Date(s)	Recipient (e.g., BASO)
c. NPH Accident Analysis. The NPH analysis supporting design and construction of facilities and safety-SSCs must be documented and include evaluation of: (1) potential damage to and failure of safety-SSCs resulting from both direct and indirect NPH events; and, (2) common cause/effect and interactions resulting from failures of other nearby facilities or other SSCs in the same facility caused by or induced by an NPH event.	In compliance	Included as part of the required Basis of Design documentation, and reviewed in accordance with ESH BIO Review and Authorization Manual, and project-specific Facilities Design Guidance.	n/a	n/a	n/a	n/a
d. Review and Upgrade Requirements for Existing DOE Nuclear Facilities (Hazard Category 1, 2 and 3).						
(1) Existing facility or site NPH assessments must be reviewed at least every 10 years for any significant changes in data, criteria, and assessment methods that would warrant updating the assessments. Sections 9.0 and 9.2 of DOE-STD-1020-2016 contain criteria and guidance for performing these reviews. The review results, along with any recommended update actions, must be submitted to the head of the field element for approval. If no update is necessary, this result must be documented following the review.	Not applicable.	Applies only to Hazard Category 1, 2, and 3 nuclear facilities as defined by 10 Code of Federal Regulations (C.F.R.) Part 830, Nuclear Safety Management. SLAC is a radiological facility.				
(2) If a new assessment of NPH indicates deficiencies in existing SSC design, a plan for upgrades must be developed and implemented on a prioritized schedule, based on the safety significance of the upgrades, time or funding constraints, and mission requirements. The upgrade plans must also be submitted to the head of the field element for approval. Section 9.3 of DOE-STD-1020-2016 contains guidance on performing upgrade evaluations.	Not applicable.	See section 3.d.(1) above.	n/a		n/a	n/a

**Deliverables: Data delivered to DOE or other external agency (e.g., recurring reporting, external database entries)*

Attachment 2: Facility Safety Requirements Section and Tasks	Compliance Status	Method of Compliance	Deliverables*			
			Item	Frequency	Due Date(s)	Recipient (e.g., BASO)
e. Seismic Detection. DOE sites with nuclear or hazardous materials must have instrumentation or other means to detect and record the occurrence and severity of seismic events	In compliance	A memorandum of understanding dated 04/11/2011 establishes an agreement with the United States Geological Survey (USGS) to utilize data from an on-site seismograph. The seismograph is owned and maintained by the USGS.	n/a	n/a	n/a	n/a
f. Post-Natural Phenomena Procedures. Facilities or sites with hazardous materials must have procedures for inspecting facilities for damage from severe NPH events and placing a facility into a safe configuration when damage has occurred.	In compliance	SLAC maintains Emergency Response procedures and also ensures that its Emergency Response Teams are trained and prepared to respond to NPH events.	n/a	n/a	n/a	n/a
Chapter V. Cognizant System Engineer Program (N/A)						
OBJECTIVE. To establish requirements for a cognizant system engineer (CSE) program for hazard category 1, 2, and 3 nuclear facilities and to ensure continued operational readiness of the systems within its scope.	This Chapter does not apply to SLAC, therefore it is not included.					

Attachment 3: Design Criteria for Safety Structures, Systems, and Components (N/A)

(Not Applicable to SLAC: Applies only to the design and construction of new hazard category 1, 2, and 3 nuclear facilities as defined by 10 Code of Federal Regulations (C.F.R.) Part 830, *Nuclear Safety Management*; and, (2) major modifications to hazard category 1, 2, and 3 nuclear facilities, as defined in 10 C.F.R. Part 830, that substantially change the facility safety basis.)

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Site Compliance Plan (Final Rev, 1/12/2021)

Approvals

Name	Title	Signature	Date
Carole Fried	Director, ESH, SLAC	Carole Fried — Digitally signed by Carole Fried DN: cn=Carole Fried, c=US, o=SLAC National Accelerator Laboratory, ou=EH&S Division, email=carolef@slac.stanford.edu Date: 2021.01.13 08:56:03 -08'00'	
Thomas V. Rizzi	ES&H & Facilities Ops Team Lead, BASO	Thomas V. Rizzi	01/14/2021
Paul Golan	Head of Field Element, BASO		1/14/2021

PLEASE RETURN SIGNED IMPLEMENTATION PLAN TO CONTRACT MANAGEMENT

Revision History

Revision	Revision Date	Summary of Change(s)
R0	01/12/2021	Original Release