

LBNL ES&H Manual, Chapter 10

CONSTRUCTION SAFETY

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Approved by Julie Drotz

Revised March 2015

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NOTE:



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10.1 Policy

The Construction Health & Safety Program ensures the safety of Berkeley Lab employees, visitors, and subcontractors during construction activities at the Laboratory by flowing down Integrated Safety Management (ISM), 10 CFR 851, and other requirements to subcontractors. This is achieved by:

- Providing construction leadership (project managers, construction managers, superintendents, foremen, etc.) with construction safety support and oversight.
- Selecting qualified subcontractors.
 - Reviewing all subcontractor safety performance, programs, and qualifications.
- Ensuring proper Environment/Health/Safety (EHS) documentation is submitted for the work to be performed.
 - Ensuring that subcontractors adequately evaluate hazards and implement safety controls.
 - Ensuring that the subcontractors stop to assess work changes or new tasks for hazards and to ensure hazards are controlled prior to proceeding with the work.
- Ensuring key safety personnel are available and on site when necessary.
- Ensuring that subcontractors train their employees and visitors on the safety program elements.
- Ensuring that emergency procedures are in place.
- Ensuring that incidents are properly reported.
- Ensuring that the subcontractor employees understand the stop work order.
- Ensuring that construction site visitors are controlled.
- Ensuring that Berkeley Lab EHS requirements are understood and followed.
- Notifying subcontractors of noncompliance, and taking appropriate action.

- Implementing subcontractor inspections by construction safety staff to ensure compliance with Berkeley Lab EHS requirements.

10.2 Scope

1. This document establishes the institutional Construction Safety Program for Berkeley Lab. Specific safe construction-work practices are outlined in the LBNL Construction Safety Manual.
2. The Construction Safety Program is established in accordance with the requirements of 10 CFR 851.24. The primary safety standard included by reference and that concern construction safety are:
 - a. Title 29 CFR, Part 1926, “Safety and Health Regulations for Construction”

10.3 Applicability

This program applies to all construction activities. Construction activities may originate from construction subcontracts, service contracts, and purchase orders.

10.4 Exceptions

Persons performing work on projects or sites that do not fall under DOE jurisdiction are not required to follow the requirements of this program. However, an equivalent program meeting applicable regulatory requirements will apply.

10.5 Roles and Responsibilities

Role	Responsibilities
Division management	<ul style="list-style-type: none"> • The primary safety responsibility of division management is to ensure that project managers and the construction manager set and follow LBNL safety policies from “bid day” to the Project Closeout Meeting. • Performs a safety audit every time they visit a job. • Sets the example by ensuring all personnel follow LBNL safety policies. • Ensures that the safety training of all operating group personnel meets or exceeds LBNL and OSHA requirements. • Takes an active role in the Facilities Division’s safety program. • Holds each project manager and construction manager accountable for safety and health performance. • Ensures that safe construction activities are a part of the annual performance review. • Leads by example by following the ISM philosophy. • Takes required disciplinary action when supervisory and/or management personnel do not perform their safety duties per LBNL policy. • Promotes consistency in safety from project to project. • Evaluates all project managers, construction managers, and leads on their safety performance. • Attends all required safety training courses. • Implements and maintains an effective safety program. • Ensures workers under their supervision maintain safe work areas and

	perform their tasks in a safe manner
Construction workers	<ul style="list-style-type: none"> • Must accept responsibility for their own safety and for the safety of others around them by working safely and insisting that their coworkers do the same. <ul style="list-style-type: none"> • Conduct work in a safe manner. • Stop work immediately to correct <i>any</i> unsafe conditions. • Take corrective actions so that work may proceed in a safe manner. • Arrive at work alert and ready to focus on safely performing their job. REMEMBER: Your safety and the safety of everyone around you require your full attention. • Follow safety instructions given by the foreman or superintendent. Be on guard for unsafe conditions or activities and take action to correct them. If the problem cannot be fixed, report it to the foreman. • Use good judgment to provide for personal safety and for safety of coworkers. • Use the required safety equipment. • Comply with all LBNL policies and with federal OSHA regulations and good safety practices. • Wear the proper clothing for the job. Constantly strive to improve your safety education. Immediately report <i>all</i> injuries to your supervisor.
Contractor employers	<ul style="list-style-type: none"> • Oversee the safety of their employees and/or visitors as required by the rules and regulations of this manual; 29 CFR 1926, <i>Safety and Health Regulations for Construction</i>; and all other applicable local, state, and federally recognized current standards and codes. • Understand and follow the contents of this ES&H Manual program and the Contractor Safety Manual. • Train/educate their employees and/or visitors in the contents of this Manual, and the requirements for conduct of work under this LBNL EHS program. • Document all employee training. • Oversee the safety of their employees and/or visitors as required by the rules and regulations of this program; the Code of Federal Regulations 10 CFR 851, <i>Worker Safety & Health Program</i>; 29 CFR 1926, <i>Safety and Health Regulations for Construction</i>; and all other local, state, and federally recognized current standards and codes. • Understand and follow the contents of this program. • Train/educate their employees and/or visitors in the contents of this program, and the requirements for conduct of work under the Berkeley Lab ISM Plan. • Document all employee training.
Subcontractor employees	<ul style="list-style-type: none"> • Have the same safety rights and obligations as those of Laboratory employees.
Subcontractor On-Site Health and Safety Representative	<ul style="list-style-type: none"> • Conducts regular documented inspections of the construction work site to identify and correct any instances of noncompliance with the project health and safety requirements. • Assists in the development of the contractor's safety plan and job-site management system.

	<ul style="list-style-type: none"> • Supports training of contractor personnel. • Evaluates the contractor safety process continuously. • Responds to questions regarding the contractor safety process. • Attends pre-job meetings to discuss the contractor’s site-specific safety plan. • Conducts and documents job-site safety audits. • Assists in the identification of jobs requiring an activity-based hazard analysis. • Attends all required meetings. • Is a proponent of safety in words and actions. • Conducts daily documented inspections of the construction work site to identify and correct any instances of noncompliance with the project health and safety requirements. • Assists in the development of the subcontractor's safety plan and job-site management system. • Supports training of subcontractor personnel. • Evaluates the subcontractor safety process continuously. • Responds to questions regarding the subcontractor safety process. • Attends pre-job meetings to discuss their site-specific safety plan. • Assists in the identification of jobs requiring an activity-based hazard analysis. • Attends scheduled meetings at the request of LBNL. • Attends or conducts Plan of the Day meetings. • Reviews JHA to ensure it has been properly completed.
Competent Persons	<ul style="list-style-type: none"> • Identify existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and have the authorization to take prompt corrective measures to eliminate them.
Qualified Persons	<ul style="list-style-type: none"> • Use skills and knowledge to solve or resolve problems relating to the subject matter, the work, or the project • Possess recognized degree, certification, or professional standing; or have extensive knowledge, training, and experience in the subject matter.
EHS Construction Safety Professional	<ul style="list-style-type: none"> • Coordinates, tracks, and provides quality assurance for the EHS document package review for Berkeley Lab construction projects • Conducts routine observations of construction work sites to identify and correct unsafe workplace conditions and behaviors

Berkeley Lab construction and project managers

Safety begins with the construction manager. The culture that the construction manager brings to the job is what sets the baseline for the entire job. You have the authority and responsibility to run a safe job.

Pre-construction phase:

- Attend safety analysis meeting.
- Identify any special hazards in advance by reviewing plans, specifications, and construction methods with technical assistance from EHS.
- Assist project manager with pre-construction subcontractor safety meetings

Construction phase:

- Arrange pre-start-up meeting with each subcontractor.
- Plan, conduct, or review the daily pre-task planning outlines.
- Attend weekly safety progress meetings.
- Implement project housekeeping program from the very start of the project.
- Enforce LBNL employee and subcontractor safety compliance.
- Attend and participate in the weekly toolbox safety meetings.
 - Ensure subcontractors hold weekly toolbox meetings.
 - Obtain a copy of the minutes.
- Issue subcontractor non-compliance notices for safety hazards when appropriate.
- Verify that the safety program is effective and that the job is safe.
- Conduct or attend job-wide safety meetings at least monthly.
- Establish and maintain access routes for vehicle, pedestrian, and emergency response crews.
- Make sure that all safety equipment is provided and used correctly.
- Assist in investigating all accidents.
- Investigate and correct all unsafe conditions.
- Maintain safety training requirements.
- Create a constantly improving safe site environment and culture.
- Oversee completion of a daily audit.
- Attend all required safety training courses.
- Support LBNL loss prevention efforts by cooperating with the project manager, EHS, and other loss control agencies.
- Approve EHS document packages submitted by subcontractors.
- Conduct routine observations of construction work sites to identify and correct unsafe conditions and behaviors.

10.6 Definitions

Term	Definition
ANSI	American National Standards Institute
Authorized Person	A person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the job site
Competent Person	One who is capable of identifying existing and predictable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt, corrective measures to eliminate them. A Competent Person is also one who has extensive training knowledge/experience in a particular activity or job function. A Competent Person at LBNL shall be capable of demonstrating the "knowledge and skill sets" that match their "Competent Person" designation.
Construction work	Any combination of erection, installation, assembly, demolition, or fabrication activities involved to create a new facility or to alter, add to, rehabilitate, dismantle, or remove an existing facility. It also includes the alteration and repair (including dredging, excavating, and painting) of buildings, structures, or other real property, as well as any construction, demolition, and excavation activities conducted as part of environmental restoration or remediation efforts.
Construction Environmental, Health and Safety Plan (CEHSP)	A document prepared by the construction subcontractor and submitted to the LBNL EHS Office and Project Manager for review and concurrence. Describes the construction subcontractor's Environment, Safety & Health Plan and for a particular construction project and the activity hazard analysis(s) for each definable activity/feature of work.
Contamination	Refers to the impact of sources in any amount and at any degree below or above permissible levels for health and safety toward the environment or to life.
Controlled Access Zone	An area in which certain work (e.g., overhand bricklaying) may take place without the use of guardrail systems, personal fall arrest systems, or safety net systems, and access to the zone is controlled
Graded approach	Applying a level of rigor commensurate with the importance or significance of the activity, in relation to the associated hazards and consequences to ensure that available resources are used most efficiently and effectively. A graded approach is recommended to be used for implementing the work planning and control.
Hazardous	When referring to a spill, "hazardous" means the spill is above the

	permissible levels for health and safety toward the environment and life and is regulated under government standards.
Hold point	A point of defined circumstances (e.g., excavation permit) beyond which a construction activity must not proceed without the approval of a designated authority.
Integrated Safety Management (ISM)	The Department of Energy's systematic approach to analyzing work and hazards and implementing controls
Imminent danger	Any condition or practice that could reasonably be expected to cause death or serious physical harm (such as permanent or prolonged impairment of the body or temporary disablement requiring hospitalization) to employees or the public unless immediate actions are taken
Project Inspector	The Facilities Division's representative responsible for monitoring construction quality and verifying compliance with the terms and conditions of the design documents
Subcontractor	A firm that has sole contractual responsibility for execution of the construction work related to a project, and for compliance with all safety, health, and environmental codes, standards, and regulations
Qualified Person	One who by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his ability to solve or resolve problems relating to the subject matter, the work, or the construction project.

10.7 Required Work Processes

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Work Process A. General Requirements

The following work processes describe the general requirements for the Environment, Safety & Health (ES&H) construction site management. Requirements specifically related to work performed on construction sites are found in [Appendix A, LBNL Construction Safety Manual](#). The Environment/Health/Safety (EHS) and Facilities divisions expect all subcontractors to follow the requirements of this program, including Appendix A.

Work Process B. Review Safety Performance of Bidding Subcontractors

1. Construction subcontractor selection must include an evaluation of the subcontractor's prior safety performance, the subcontractor's current written safety programs, and qualifications of key EHS personnel to assure Berkeley Lab that the subcontractor is capable of meeting safety-performance goals. All subcontractors being considered to perform construction activities at Berkeley Lab-controlled sites and property must undergo such an evaluation.
2. During the construction subcontractor selection process, Facilities Division Procurement personnel request evidence of the subcontractor's workers' compensation experience modification rates (EMRs).
 - a. In general, the subcontractor must achieve an EMR of 1.0 or less to be considered for a contract award.
 - b. Occasionally, a subcontractor's EMR may not be an accurate representation of safety performance (due to statistical variations in the EMR calculation from small payroll numbers, outlier workers' compensation events, etc.). In these cases, an evaluation of a minimum of the past three years of the

subcontractor's OSHA Form 300 and Form 300A data may be used to qualify a subcontractor on the basis of construction safety.

3. Additionally, during the selection process a copy of the subcontractor's corporate program or the Cal/OSHA-required Injury and Illness Prevention Program (IIPP) is requested for review.
4. The Berkeley Lab Project Management Team, EHS Construction Safety, and Procurement personnel must evaluate the information submitted by subcontractors. Subcontractors must demonstrate an equivalent process in the selection of lower-tier subcontractors and must submit evaluation criteria and results to Berkeley Lab.

Work Process C. Review Selected Subcontractors' EHS Submittal Package(s)

1. Each subcontractor must provide Berkeley Lab with a written site-specific Construction Environmental Health and Safety Plan (CEHSP). A CEHSP template is available for contractor use at the [LBNL EHS Construction Subcontractor Safety Reference website](#), under *3. Construction Safety for Site Specific Safety Plans*.
2. The Berkeley Lab Project Manager and EHS Construction Safety Professional review, and the Project Manager approves, the submitted package before notice to proceed is given for the construction activity.
3. Lower-tier subcontractors must use and abide by the general contractor's written site-specific safety program.
4. General contractors that engage lower-tier subcontractors must ensure that each lower-tier subcontractor complies with the governing safety plan and LBNL policy.

Work Process C.1 Job Hazard Analyses

1. Subcontractor Job Hazards Analysis (JHA) Submittal
 - a. Subcontractors must submit a JHA for all construction activities that require a JHA defined below in section 2.
 - b. The JHA must be submitted for review and approval at least 7 days prior to the start of the task. The JHA must be approved by the Berkeley Lab Project Manager or Construction Manager before work commences.
 - c. The subcontractor must maintain at least two copies of the Berkeley Lab-approved JHA. The first copy should be maintained with the project files. The second copy must be conspicuously posted on the job site/project.
 - d. Each employee scheduled to perform the activities identified in a JHA must receive a safety briefing on those activities described in the applicable JHA and sign the JHA prior to performing the work. The subcontractor must maintain proof of employee safety briefings at the work site and make it available to the Berkeley Lab Project Manager upon request.

- e. The JHA is supplemented on a daily basis by a Pre-Task Hazard Analysis (PTHA). The PTHA reinforces safety planning and hazard control on a daily basis with an emphasis on verifying that work can proceed safely

2. JHA Requirements

- a. A Job Hazards Analysis (JHA) is required for all projects, regardless of the size, scope, or complexity of work. The JHA is the heart of the project's safety information and acts as a work control document. Every project will have at least one definable construction activity and therefore at least one JHA. Depending upon the complexity of the project, one or several JHAs may need to be completed. In some cases, JHAs may need to be staged in coordination with the initiation of the various phases of a project.

- a. Each JHA should be written for a well-defined scope of work and written such that the hazards and the required control measures are clearly defined and easily understood. The following are examples of construction activities for which a JHA is required. Activities that logically go together should be combined. For example, roofing work typically involves a fall potential and some hoisting and rigging of materials. The roofing JHA can include the complete scope of the activity. The subcontractor may choose to combine or separate tasks as appropriate for communications with his or her workforce.

Examples of construction activities that require a JHA include, but are not limited to:

- i. Roofing
- ii. Hoisting and rigging of materials
- iii. Excavation, trenching, drilling, and other earthwork
- iv. Concrete placement and false work
- v. Welding
- vi. Steel erection
- vii. Work performed where there is a fall potential of 6 feet or greater
- viii. Electrical work, with a potential greater than 50 volts
- ix. Demolition
- x. Work in confined spaces
- xi. Work that causes the release of silica, such as demolition or drilling of concrete or work with materials that contain silica
- xii. Work with epoxy coatings
- xiii. Work with hazardous materials
- xiv. Work on steep hillsides
- xv. Use and handling of flammable materials

- 5. An LBNL [Construction JHA](http://www2.lbl.gov/ehs/ssa/cssa/index.shtml) must be used. JHA instructions can be found at <http://www2.lbl.gov/ehs/ssa/cssa/index.shtml>. A site-specific Construction Environmental Health and Safety Plan (CESHP) template is available for contractor use at the [LBNL EHS Construction Subcontractor Safety Reference website](#), under 3. *Construction Safety for Site Specific Safety Plans*.

- 2. Requirements for Reporting Hazardous Conditions

- a. Workers must be instructed and encouraged to report hazardous conditions and actions to their supervisor or Health and Safety Representative.
 - b. If immediate corrective action is not possible or the hazard falls outside the project scope, the construction subcontractor must immediately remove affected workers, post appropriate warning signs, implement needed interim controls measures, and notify the Berkeley Lab Construction Manager of the actions taken.
 - c. The subcontractor or the designated representative must stop work in the affected area until appropriate protective measures are established.
3. Review of Subcontractor Engineered Protective Systems
- a. The subcontractor must submit, to the Berkeley Lab Project Manager for review, the design of any protective system that is required by regulations or applicable specifications, or standards to be designed by a registered professional engineer.
 - b. Berkeley Lab's review of such a system design is solely to verify that the subcontractor has had the required protective systems prepared and stamped by a registered professional engineer.
 - c. Berkeley Lab's review of any documents showing the design or construction of protective systems for worker and property protection does not relieve the subcontractor of the obligation to comply with applicable laws and standards for the design and construction of such protective work.
4. Coordination and Tracking of Construction EHS Package Reviews
- a. The Project Manager (PM) or Construction Manager (CM) is responsible for coordinating and tracking the required EHS documentation for a project, and performs a quality review to assure all required submittals are included in the final safety document package.
 - b. The PM or CM is responsible for ensuring that the EHS Division Construction Safety Professional (CSE) reviews EHS submittals from the subcontractor.
 - c. The CSE reviews the packages and, if necessary, distributes appropriate parts to additional EHS subject matter experts (SMEs) for their review and comment. The SMEs return their completed documents to the CSE, who combines comments, identifies and resolves conflicts, and forwards EHS comments to the PM/CM.
 - d. The PM or CM is responsible for ensuring that any comments received from the EHS Division Construction Safety Professional (CSE) are addressed prior to final approval of any EHS documentation.
 - e. The PM/CM is the final LBNL approver for all safety documentation. The subcontractor must have a JHA signed by the PM or CM prior to starting the activity.
 - f. The subcontractor is responsible for ensuring that the requirements of the Injury and Illness Prevention Program (IIPP) or Site-Specific Safety Plan and the applicable JHAs are communicated to the subcontractor's workforce to ensure compliance.
 - g. Copies of the final safety document package and review comments are maintained by the CM and the subcontractor for use during construction.
 - h. When the construction work is completed, the safety document package is filed with the project file.

Work Process D. Review of Subcontractors' Key Safety Personnel

1. Subcontractor On-Site Environmental Health and Safety Professional or Representative (EHS Representative)
 - a. The subcontractor must provide a qualified on-site health and safety representative who has been accepted by the Berkeley Lab Project Manager, and who has the authority to enforce all applicable project safety requirements.
 - b. The Berkeley Lab Project Management and EHS Construction Safety Office will make a risk-based decision as to the qualification level of the Subcontractor EHS Representative. The required level will be documented in Master Specification 013529. One of three options will be selected:
 - i. Option A: A full-time EHS professional, with a minimum of 10 years of construction health and safety experience; or an individual with one of the following certifications: CHST, CSP, or CIH. The person must also have the authority and responsibility to monitor and enforce the health and safety requirements of the project.
 - ii. Option B: A full-time Health & Safety Representative. This is a subcontractor supervisor that may not have other assigned duties outside of ES&H responsibilities. The person must have a minimum of 30 hours of OSHA Outreach Training for Construction. The completion of OSHA course 500 or 510 is also acceptable. The person must have the authority and responsibility to monitor and enforce the health and safety requirements of the project.
 - iii. Option C: A part-time Health & Safety Representative. This is a subcontractor supervisor who may have other assigned duties but has been identified as the EHS Representative for the project. This person must have a minimum of 30 hours of OSHA Outreach Training for Construction. The completion of OSHA course 500 or 510 is also acceptable. The person must also have the authority and responsibility to monitor and enforce the health and safety requirements of the project.
 - c. The subcontractor's designated representative (Option A, B, or C) must make frequent and regular documented inspections of the construction work site to identify and correct any instances of noncompliance with the project health and safety requirements.
 - d. During periods of active construction work, the subcontractor must have a designated representative on the construction work site who is knowledgeable about the project's hazards and has full authority to act on behalf of the subcontractor. In the absence of the assigned EHS Professional or EHS Representative, the senior subcontractor supervisor on site is the designated EHS Representative and must monitor and enforce the safety requirements.
2. Qualification Evaluation
 - a. Based on the level of safety personnel required in the contract— Option A, B or C — the subcontractor must submit the following documentation for review and acceptance by the Berkeley Lab EHS Construction Safety Manager prior to the start of work:

- i. Option A: A résumé or curriculum vitae for the proposed Health and Safety Professional showing the required health and safety experience and/or proof of professional certifications (CHST, ASP, CSP, or CIH) as applicable.
 - ii. Option B or C: Evidence of construction safety training with a minimum of the 30-hour OSHA Outreach Training in Construction (completion of OSHA course 500 or 510 is also acceptable)
 - b. A subcontractor must replace his or her EHS Professional, EHS Representative, or Superintendent at the discretion of the Berkeley Lab Project Manager within 24 hours upon written notification if the project is unsuccessful in enforcing project safety requirements. Replacement shall be at no additional cost to LBNL.
- 3. Subcontractor EHS Professional or Representative Responsibilities
 - a. The subcontractor EHS Professional or Representative must:
 - i. Assist in the development of the subcontractor's safety plan
 - ii. Support training of subcontractor personnel
 - iii. Evaluate the subcontractor safety process continuously
 - iv. Respond to questions regarding the subcontractor safety process
 - v. Attend pre-job meetings to discuss their site-specific safety plan
 - vi. Conduct and document job-site safety audits
 - vii. Assist in the identification of jobs requiring a Job Hazards Analysis
 - viii. Ensure that the the LBNL Work Planning and Control process is effectively implemented.
 - ix. Ensure tiered subcontractor safety is properly managed.
- 4. Competent Person
 - a. OSHA requires that a Competent Person be available to evaluate and address specific hazard topics. Each subcontractor must provide Berkeley Lab with a written list of those persons on site capable of identifying existing and predictable hazards, and who has the authorization to take prompt corrective measures to eliminate them.
 - b. Subcontractors must ensure that each Competent Person listed has been trained in the following areas as applicable to the scope of work:
 - i. Asbestos
 - ii. Cranes, hoisting, rigging
 - iii. Confined space
 - iv. Demolition
 - v. Excavations
 - vi. Fall protection
 - vii. Ladder
 - viii. Scaffold
 - ix. Steel erection
 - x. Underground construction
- 5. Qualified Person

- a. OSHA requires that a qualified person be available to evaluate and address specific hazard topics. Each subcontractor must provide Berkeley Lab with a written list of on-site persons whose recognized degree, certification, or professional standing, or extensive knowledge, training, and experience, have successfully demonstrated their ability to solve or resolve problems relating to the subject matter, the work, or the project.
- b. Subcontractors must ensure that each qualified person listed has been trained in the following areas, as applicable:
 - i. Asbestos
 - ii. Hazardous-waste operation
 - iii. Crane
 - iv. Chemical hazards
 - v. Concrete and masonry construction
 - vi. Electrical, overhead lines (For more information, see [Electrical Safety](#) and the [Lockout/Tagout Program](#).)
 - vii. Steel erection, open joists, site layout, and plans
 - viii. Hoists and rigging
 - ix. Scaffold
 - x. Underground construction
 - xi. Gases, vapors, dust, mist
 - xii. Ventilation
 - xiii. Material hoisting, personnel hoist, elevators
 - xiv. Excavation

Work Process E. Required Safety Training

- 1. Training Requirements
 - a. Subcontractors must provide a workforce trained to the requirements set forth in general and in the specific substance- and subject-specific standards of 10 CFR 851, 29 CFR 1926 (and as applicable 29 CFR 1910)
 - b. Subcontractors must be able to demonstrate the completion of training requirements.
- 2. LBNL Construction Safety Orientation Training
 - a. Prior to starting work, all subcontractors and their lower-tier subcontractors must require all employees to complete the LBNL Construction Safety Orientation Training covering at a minimum the Berkeley Lab and subcontractor safety program requirements.
 - b. LBNL maintains records of personnel who have completed the orientation training.
- 3. Site Specific Orientation

- a. The subcontractor can require at their discretion additional project site specific training for site access. If such training is required, the subcontractor must make such training available to LBNL staff who need regular job site access.
4. Weekly Toolbox Safety Talks
 - a. All subcontractors are required to conduct and document a weekly safety toolbox talk. These talks will be conducted at the job site and contain safety information that will increase safety awareness on this project. **The weekly toolbox safety talks must relate to work that is under way or immediately forthcoming.**
 - b. An attendance roster of signatures must be collected and filed with a copy of the toolbox talk.
 - c. Copies of the attendance roster and toolbox talks must be available to Berkeley Lab upon request.
 - d. Each subcontractor is responsible for ensuring employee attendance at the safety toolbox talks.
5. Safety Instruction for Employees
 - a. When workers are first employed they must be given instruction regarding the hazards and safety precautions applicable to the type of work in question and directed to read the Code of Safe Practices in their company's IIPP.
 - b. The subcontractor must allow only Qualified Persons to operate equipment and machinery.
 - c. Where employees are subject to known job-site hazards, such as flammable liquids and gases, poisons, caustics, harmful plants and animals, toxic materials, confined spaces, etc., they must be instructed in the recognition of the hazard, in the procedures for protecting themselves from injury, in the first-aid procedure in the event of injury, and the location of material hazard information (e.g., Safety Data Sheets [SDSs]).

Work Process F. Emergency Procedures

1. An emergency is any situation that poses an immediate threat to life or property. This would include but not be limited to the collapse of all or part of a building; fire; explosion; equipment failure such as the collapse of a crane; release or exposure to toxic liquids, vapors, or fumes; presence of gas or other explosive atmospheres; or natural disasters, such as floods, earthquakes, etc. Violent or suspicious behavior may also be cause for initiating emergency procedures.
2. All subcontractors must ensure that they maintain one person currently qualified in American Red Cross or equivalent cardiopulmonary resuscitation (CPR) and first aid on site at all times.
3. In the event of a life-threatening or other serious incident (fire, injury, etc.) requiring the assistance of outside personnel, contact Berkeley Lab emergency services immediately at:
 - a. 7-9-1-1 for assistance; from an outside line, call 9-1-1
 - i. Upon calling, the person must state their name, their contractor's name, the location of the emergency, and the type of emergency. The caller must stay on the call until released by the emergency dispatcher. The Berkeley Lab Construction Manager must be contacted as soon as practicable.

4. The subcontractor must establish evacuation procedures and provide direction to their employees on changes to evacuation procedures as the job progresses.
 - a. For emergencies involving evacuation, all subcontractor personnel will follow the developed, posted evacuation routes to their designated assembly points, and remain there until they are accounted for and an "all clear" or alternate directive is given.
 - b. Subcontractors must inform Berkeley Lab as to the location of the designated assembly points for their employees. In the event of an evacuation, the subcontractor must conduct a head count and immediately notify the responding Emergency Services of any missing personnel.
5. After the emergency, the subcontractor must ensure that all proper incident reports are completed and distributed through the Project Manager in the required time frame.
6. A list of "key" on-site and home-office personnel (with 24-hour phone numbers) must be developed by each subcontractor and submitted to the Berkeley Lab Project Manager prior to commencement of work.
7. The Berkeley Lab Project Manager or designated Berkeley Lab management team member in off-hours will take charge in the event of a major catastrophe. The applicable steps are to be followed:
 - a. Stop work.
 - b. Take whatever actions are needed to make people on the project safe.
 - c. Call 7-9-1-1 for assistance; or from an outside line, call 9-1-1.
 - d. If necessary, call for site evacuation with roll call and clear the site-access roads.
 - e. Issue instructions to all supervisors and employees.
 - f. Set up security control at the emergency area.
 - g. Refer all media requests to the Berkeley Lab Communications and Media Relations Group.

Work Process G. Incident Site Control and Reporting

1. **Incident Control.** If a job-site accident occurs, the subcontractor will immediately implement controls and restrictions on the accident site to ensure the scene of an accident remains undisturbed until the Berkeley Lab Project Manager issues a written release to resume work.
2. **Near-Miss/Injury-Free Event.** The subcontractor must review near-miss incidents for lessons learned and report these occurrences to the Berkeley Lab Project Manager within 24 hours of the near miss. OSHA defines a near miss as "incidents where no property was damaged and no personal injury sustained, but where, given a slight shift in time or position, damage and/or injury easily could have occurred."
3. **First-Aid Event.** The subcontractor must collect and log their incident reports and recommended corrective action. The incident logs and work-hour statistics will be sent to the Berkeley Lab Construction Manager by the first of each month.
4. **Medical Treatment Event.** If the injury is considered an emergency, immediately call 7-9-1-1 from Laboratory phones or 9-1-1 from any cell phone. The subcontractor must immediately notify the Berkeley Lab Project Manager. The subcontractor must furnish a copy of OSHA Form 301(or equivalent) to the Berkeley Lab Project Manager within five days of the injury.

5. Electric Shock

- a. All electric shocks regardless of apparent injury or status of the person receiving the shock are potentially serious and require immediate medical evaluation and care. The individual receiving a shock must be immediately transported to the nearest available medical facility for an assessment. If the individual has any apparent symptoms from the shock then emergency services should be immediately contacted via 9-1-1. During normal business hours, the LBNL Health Services at Building 26 is the closest medical facility.
- b. Report all electrical shocks to the LBNL Project Manager (PM) or Construction Manager (CM) immediately.

6. **Post-Injury Event or Post-Scene Stabilization.** The prime subcontractor must immediately notify the Berkeley Lab Construction Manager of any serious injury event requiring medical treatment. Refer **ALL** media inquiries to Berkeley Lab Communications and Media Relations Group.

7. Fatality

- a. The subcontractor must notify the Berkeley Lab Project Manager. Division management will then notify the appropriate Department of Energy (DOE) office.
- b. **The subcontractor must notify Cal/OSHA within eight hours.**
- c. Refer **ALL** media inquiries to the [Berkeley Lab Communications and Media Relations Group](#).

Work Process H. Stop Work Order

1. Initiating Stop Work Order

- a. Any worker at LBNL can initiate a stop work order.
- b. A stop work order must be given when an imminent danger is identified or where significant damage to equipment or property, or environmental degradation, could occur if the operation continued.
- c. Only those areas of a construction project immediately involved in the identified hazardous situation are to be included in the stop work order.
- d. Any employee who observes an imminent-danger situation must stop the work and report it to the subcontractor representative at the work site.
- e. Immediately after stopping work, the person issuing the order must report his/her action to the Berkeley Lab Project Manager and Berkeley Lab Construction Safety Professional.
- f. The Berkeley Lab Project Manager and Berkeley Lab Construction Safety SME will be dispatched to the site to verify that the operation has stopped and that the stop work order was exercised in a justifiable and responsible manner.
- g. Work cannot restart until the Berkeley Lab Project Manager has agreed that the imminent danger has been eliminated and has notified the construction subcontractor that work may be resumed.

2. Difference of Opinion

- a. Differences of opinion regarding a stop work order among the Berkeley Lab Project Manager, Berkeley Lab Construction Safety Professional, and others must be immediately referred to the respective functional supervisors for resolution.
- b. The recommendations of the Berkeley Lab Construction Safety Professional must be followed until a final decision is made. The Berkeley Lab EHS Division Director makes the final determination.

Work Process I. Visitors

1. Visitor Access

- a. All visitors must report to the project field office upon entering the project site.
- b. Access to the site must be denied to any individual who does not have justifiable business on the job site.

2. Visitor Tours

- a. Requests for tours of the project site must be carefully screened and limited in frequency and numbers of people.
- b. Tours of the site must be approved by the Berkeley Lab Project Manager and the Berkeley Lab Construction Manager.
- c. Berkeley Lab will establish the time and travel route for any tour.
- d. Areas that may present hazards to tour groups must be avoided.
- e. The tour's travel route must be clear of any tripping hazards and properly protected to avoid potential personal injury.
- f. A designated member of Berkeley Lab must guide the approved tours.

3. **Visitor Protective Wear.** All visitors must wear long pants, shirts with sleeves over the shoulder, hard hats, safety glasses, and hard-soled work shoes or boots when on site. No penny loafers, dress shoes, or other inappropriate footwear will be permitted.

Work Process J. Work Planning and Control

1. **Contractor Plan-of-the-Day Meeting.** The plan of the day (POD) process is required to maintain daily positive control over task-level work and to establish a high level of communication between subcontractors prior to the start of construction activities for the day.
 - a. The basis of the POD process is in preplanning. First-tier contractors and any/all lower-tier subcontractors shall identify all planned tasks on a POD and Pre-Task Hazard Analysis (PTHA) form. The level of detail must be appropriate to define all tasks' that may present a hazard to people, property or environment. The listed task(s) shall include the corresponding PTHA. If the proposed task does not have a corresponding PTHA, then a new PTHA will need to be developed and reviewed prior to the work moving forward.
 - b. The completed POD and PTHA must be submitted to the first-tier subcontractor for review against conflicting operations, regulatory hold points, and required permits and with an acceptable level of detail. The plan must be submitted in a timely fashion (preferably the day before) to ensure that the first-tier subcontractor can perform a quality review of the plan. A representative for each

subcontractor performing work that day must have submitted their proposed POD/PTHA to the first-tier contractor superintendent or designee prior to the start of the meeting for review and work approval. The first-tier subcontractor shall record what subcontractors were in attendance at the POD. Subcontractors that are not present at the POD shall not be authorized to perform work until their POD/PTHA is submitted and approved by the first-tier subcontractor.

- c. During the POD meeting, each subcontractor must present their POD work activities to the attendees to control co-located hazards. The first-tier contractor should have a size D drawing or other effective project pictorials available that can be referenced during the POD meeting.
 - d. Upon completion of the initial POD meeting, each subcontractor is then required to have breakout sessions (daily "tailgate" meetings) with each work crew member prior to the start of each work shift, or when an individual arrives at work. The meeting shall include a discussion of the specific POD and corresponding PTHA for their work and additional safety topics of interest related to the site.
 - e. All crew members shall acknowledge the POD (daily "tailgate meeting) by signing an attendance roster for the POD/PTHA.
2. All construction work must be planned and controlled at a level that ensures all personnel understand:
 - a. The authorized scope of work
 - b. The hazards of performing the work
 - c. The control measures that will be used to address the hazards
 - d. The requirements to stop whenever the work changes from what has been authorized and the actions required to ensure that the change is incorporated into the work plan and can proceed safely.
 - e. The POD is focused on all activities at the job-site whereas the PTHA briefing is focused on a single crew or group of workers performing the same tasks.
 3. Pre-Task Hazard Analysis (PTHA) briefings shall be held each day prior to the start of work activities. The flexibility exists for each subcontractor to integrate these requirements into their existing EHS program format as long as the required information is effectively provided to employees, and documentation for these briefings and/or meetings is maintained. This may be accomplished through daily construction meetings, plan of the day (POD) meetings, pre-task activity reviews, or other means that prove to be effective in disseminating required information and have been accepted by LBNL.
 4. Records for briefings that document meeting content and attendance shall be maintained in the on-site project binder. All crew members shall acknowledge the disseminated information by signing the attendance roster.
 5. The briefing content shall include at a minimum the following topics:
 - a. EHS pre-task planning for the day's work activities
 - b. Changes in work practices or environmental conditions
 - c. Required equipment/system daily inspections
 - d. Previous days incidents, near misses, lessons learned, and/or other relevant issues as applicable
 - e. Other ongoing activities that may have project EHS implications
 - f. New or modified site-wide procedures or requirements
 - g. Review of JHA for new activities and/or revised existing JHAs
 6. Each briefing must reinforce the requirement to stop and update the PTHA prior to making any changes in task assignments or locations that differ from what was covered in the briefing and documented in the PTHA. Another pre-job briefing addressing the change is required prior to implementing any changes that occur after the start of shift briefing.
 7. **Perform the Work.** Only the work documented in the PTHA and discussed in the pre-job briefing may be performed.

- a. Any change in scope or hazards during the shift requires an update of the PTHA and a re-briefing of the affected workers.*
 - b. If new workers join the task after the briefing, the new workers must receive the pre-job briefing prior to starting work.*
- 8. Feedback and Lessons Learned.** During any given work shift there may be significant or simple lessons learned. Lessons learned should be shared at PODs, safety meetings, and pre-job briefings in order to improve the overall performance of the job. Examples of lessons learned that should be identified and shared include:
 - a. Identification of new hazards
 - b. Identification of new or improved hazard controls
 - c. Identification of process improvements
 - d. Identification of potential flaws in the design or work plan that could be improved
 - e. Identification of better work practices that make the work safer or more productive
- 9. Out of Sequence Change Control.** As required by contract or change notice: If during the course of the day, additional task(s) need to be performed that are not identified on the POD, then the subcontractor's responsible supervisor shall add this task to the POD, revise the PTHA as necessary, receive approval from the first-tier contractor superintendent or designee, and contact the LBNL Construction manager for Authorization. If approved, the requesting contractor will brief the affected crew of the work task changes and revised PTHA. Affected crew members must initial and date their re-review of the POD/PTHA.
- 10. Contractor /LBNL Permit Meeting**
 - a. As required by contract or change notice: A daily permit meeting shall be held to facilitate upcoming work activities in a timely manner. The meeting shall be attended at a minimum by the contractor's permit requestor and the project work planner/coordinator. Permit requests shall be identified on the applicable LBNL permit form. A workability walk down shall be completed, a risk value assigned per the Work Planning and Control (WPC) procedure, and any required hold points identified. The completed information will be submitted by the work planner/coordinator to the LBNL Site Manager for review and authorization through the LBNL coordination meeting.
 - b. The first-tier contractor should have size D drawings or other effective project pictorials available, and all active permits shall be clearly identified on the permit board. The permit board shall be maintained on a daily basis and shall be referenced during the POD meeting to communicate co-located hazards.
- 11. LBNL Coordination Meeting**
 - a. As required by contract or change notice: A daily coordination meeting shall be held to review project /task status, and confirm readiness of the proposed work package to include personnel (qualification tasking), tools, equipment, and required permit status. The minimum required attendees include: the LBNL Project Manager or designee, the contractor's superintendent, the work planner/coordinator, and the contractor's site safety manager.
 - b. The meeting will verify the risk matrix and safety basis of each proposed activity, adequately address any concerns, identify hold points, and schedule coordination actions to complete the preplanning activities. All items will be updated, and only the line items confirmed as completed will be authorized for the next day's demolition activities.

- c. The POD activities report will be provided by the LBNL Project Manager or designee to the construction superintendent for presentation at the next day's contractor POD meeting.

Work Process K. Specific ES&H Requirements: Permits

1. **General.** Permits are required for the activities listed below and must be obtained prior to start of work. Permits must be posted conspicuously at the work site.
2. **Fire Safety Permit**
 - a. All hot work requiring the use of open flames and/or heat- or spark-producing equipment requires a Fire Safety Permit from the Berkeley Lab Fire Department.
 - b. Construction subcontractors may request a Fire Safety Permit directly from the Fire Department or through the Project Manager.
 - c. Upon request for a Fire Safety Permit, the Fire Department's representative meets the requester at the work location to discuss precautions to be taken, including the placement of fire extinguishers or a fire watch.
3. **Penetration Permit**
 - a. All work that requires excavating, drilling, or driving stakes or poles 1 5/8 inches or deeper into a surface requires a permit.
 - b. A permit is also required to penetrate any depth into existing concrete surfaces such as floor slabs, walls, beams, or columns.
 - c. The permit is issued by the Berkeley Lab Utilities Engineer.
 - i. Subcontractors may obtain the permit through the Construction Manager or Project Manager.

Work Process L. Specific ES&H Requirements: Accident and Injury Information

1. **Contaminated Spills**
 - a. Berkeley Lab's primary concern is to protect the workers and the environment in the event of an incidental spill.
 - b. If a spill occurs, it must be immediately isolated and contained to prevent contamination of the surrounding area, waterways, sewer systems, or any other environmental impact.
 - c. The subcontractor is responsible for all costs associated with the cleanup and disposal of the contaminated/hazardous materials.
 - d. If a spill occurs, the SDS for the chemical will provide the emergency information necessary to address the spill. The emergency cleanup team will need a copy of the SDS to begin the cleanup process.
 - e. The subcontractor must immediately notify the Berkeley Lab Project Manager in the event of any spill.

- f. All subcontractors must assign trained employees who are capable of handling spills. Whenever chemicals are brought on site, the SDS must be reviewed by the subcontractor and its information communicated to all personnel exposed to its usage. If special spill response materials or equipment are specified in the SDS, then the subcontractor must be provided those materials or equipment in quantities adequate to address the largest potential spill of the material.
- g. All subcontractor records regarding spills must be copied and given to the Berkeley Lab Project Manager for filing.

2. CPR and First Aid

- a. All subcontractors must have at least one person certified in first aid and CPR at the job site at all times.
 - i. Subcontractors are solely responsible to ensure the required and proper CPR and first-aid training of their employees.
 - ii. First aid providers must also be trained in the decontamination of blood spills and bloodborne pathogens.
- b. Subcontractors must provide an ANSI Z 308.1–approved first-aid kit on the job site.
 - i. The subcontractor site superintendent must ensure that the kit is properly stocked, maintained, and inspected weekly per OSHA requirements.
 - ii. The first-aid kit will also contain equipment and materials to be compliant with Cal/OSHA, *General Industry Safety Orders, Section 1593 — Blood-borne Pathogens*, including mouth-to-mouth resuscitation devices, powdered bleach, and disposable latex gloves.

3. Bloodborne Pathogens

- a. Bloodborne pathogens are disease-causing organisms transmitted through contact with infected blood and other bodily fluids.
- b. Any exposure to an infected individual's body fluids may result in transmission of bloodborne pathogens, which could lead to disease or death.
- c. When dealing with blood or other bodily fluids, subcontractor employees are required to follow universal precautions.
 - i. According to the concept of universal precautions, all human blood and other human body fluids are treated as if known to be infectious for HIV, hepatitis B, and other bloodborne pathogens.
- d. All subcontractors certified in first aid must wear disposable latex gloves and eye protection while performing first aid on an injured individual.
- e. If rescue breathing or CPR is performed, a resuscitation mask must be provided by the subcontractor to protect the injured and the provider.
- f. The subcontractor must immediately contain and clean all blood spills with an antiviral solution, or with a solution of bleach and water.

- g. Any material saturated with blood must be considered regulated waste, including liquid or semiliquid blood or other potentially infectious materials; contaminated items that would release blood or other potentially infectious materials in a liquid or semiliquid state if compressed; and items caked with dried blood or other potentially infectious materials.
 - i. Discarded Band-Aids and gauze containing small amounts of blood products are not considered regulated waste.
- h. The cleanup and disposal of all regulated waste are the sole responsibility of the subcontractor under his or her bloodborne pathogen control program.

Work Process M. Specific ES&H Requirements: Hazard Communication

1. General

- a. The OSHA *Hazard Communication Standard* requires that all employers with employees potentially exposed to hazardous chemicals at their work site establish a hazard communication program.
- b. The regulation is more commonly known as "HazCom" or the "Right-to-Know Law."

2. Subcontractor Hazard Communication

- a. All subcontractors are solely responsible to abide by the *Hazard Communication Standard* in training their own employees, their Safety Data Sheet (SDS) record keeping, their notification procedures, and any other aspects of the requirement.
- b. All subcontractors must supply the Berkeley Lab Project Manager with a written copy of their hazard communication program along with the SDS, or the SDS for any chemical materials brought on to the job site.
- c. Subcontractors must train their workers in accordance with their hazard communication program.
- d. All containers must be labeled in accordance with the applicable program.
- e. The exchange of SDS must take place initially when the subcontractor comes onto the site, at regular site-safety meetings, and/or at any other designated time by the Berkeley Lab Project Manager.
- f. All workers on the job site, regardless of their employer, must be informed of the location of SDSs and have access to SDSs for all chemicals in use on the site.
- g. All subcontractors must abide by this exchange and are to immediately inform the Berkeley Lab Project Manager of any new chemical substances brought onto the job site.

Work Process N. Specific ES&H Requirements: Procurement of Hazardous Materials

- 1. The subcontractor must submit to the Berkeley Lab Project Manager, for review by the Berkeley Lab EHS Division, any proposed procurement, stocking, installation, or other use of materials containing asbestos,

cadmium, chromates, or lead. Additionally, the subcontractor must submit the product's safety data sheet (SDS) for architectural and surface coatings, solvents, adhesives, sealants, oils, compressed gases, pesticides, herbicides, welding materials, or other chemicals used in the construction process, for review and acceptance by the Berkeley Lab EHS Division prior to the start of work.

2. All materials and applications must comply with all requirements of the Bay Area Air Quality Management District (BAAQMD) regulations, including, but not limited to architectural coatings, general solvent and surface coatings, solvent cleaning operations, adhesive and sealants, visible emissions, and asbestos.
3. The subcontractor must keep and maintain proof of compliance with the above-referenced regulations, including any recordkeeping obligations, for two years after completion of the project. The subcontractor must make such documents or evidence available if requested by the BAAQMD or Berkeley Lab.

Work Process O. Specific ES&H Requirements: Return to Work

1. To provide prompt quality medical services and to return injured employees to the project as soon as possible, all subcontractors must establish a "light duty" or "restricted duty" policy for their employees in the event they are injured on this project and cannot perform normal daily duties.
2. A restricted-duty assignment must be provided to any employee who, because of a job-related injury or illness, is physically or mentally unable to perform all or any part of his/her normal assignment during all or any part of the normal workday or shift.
3. All work-related injuries must be reported to the Berkeley Lab Project Management Team immediately.
4. If any employee has any doubt as to where to go for medical treatment for a job-related injury, he or she must contact the Berkeley Lab Project Management Team.
5. When an injured employee returns to work, all physical and mental limitations must be evaluated to prevent additional injury or aggravation. The safety of other employees working with the injured individual must also be considered.
6. Injured employees may return to work on restricted duty under the following circumstances:
 - a. The employee's attending physician has defined the physical restrictions.
 - b. The subcontractor has a task that can be assigned that meets the restrictions
 - c. The project managers, supervisors, and foreman are informed of the restrictions.
 - d. The employee must receive full medical release from a physician before resuming normal work activities. No employee on restricted duty will be allowed to work more than 40 hours per week.
 - e. The injured employee will remain on the project where the injury occurred while on restricted duty.

Work Process P. Noncompliance

To ensure compliance with the requirements of this safety program and all established OSHA standards, Berkeley Lab implements this procedure to address noncompliances by subcontractors working on Berkeley Lab-controlled

property. Noncompliances identified by LBNL are to be attributed to the offending subcontractor and timely corrective action is expected. Except in cases of clear negligence or willful violation by an individual worker, LBNL will not get involved in disciplinary actions for individual subcontractor employees.

1. Safety Partnering

- a. LBNL expects all subcontractors to self-identify and correct noncompliances and unsafe conditions on the job site without prompting from LBNL.
- b. LBNL will recognize and reward subcontractor efforts to self-identify and correct noncompliances and unsafe conditions.
- c. LBNL EHS resources strive to work as partners with subcontractors to ensure safe and compliant projects. LBNL EHS resources assist subcontractors and their workers in the understanding of LBNL and regulatory requirements. Cooperation and teamwork between all parties is welcome and necessary to achieve the high level of safety performance desired by all.
- d. The LBNL Construction Safety Professional, LBNL Construction Safety SME, , the LBNL Construction Manager, or the LBNL Project Manager may identify noncompliances with applicable environment, health, and safety requirements. The observation of work and the correction of noncompliances and unsafe behaviors are intended to reinforce desired behaviors and conditions and correct unsafe behaviors and conditions.
- e. Day to day noncompliance issues that can be quickly addressed may be handled verbally. If corrected on the spot, no written record is required except for issues resulting in an imminent danger to personnel or the environment.
- f. LBNL personnel perform work observations that are documented in a database for the purpose of tracking, trending, and improving job safety (see Work Process Q).
- g. LBNL expects a small amount of minor noncompliances to arise due to misunderstandings, differences of opinion, misapplication of rules, poor judgment, and worker errors. LBNL expects these noncompliances to be identified and corrected with no documentation and little consequence.
- h. High-risk offenses that put workers or the environment in imminent danger of serious harm will be stopped and recorded in writing. This action will be followed by meetings as needed between the responsible subcontractor supervisor, subcontractor superintendent, and LBNL PM or LBNL CM until an agreement is reached that the noncompliance has been sufficiently addressed and the work can be restarted.
- i. Some moderate and most high-risk offenses require reporting to the DOE via the DOE Occurrence Reporting and Processing System (ORPS) or the DOE Noncompliance Tracking System (NTS). Each subcontractor must cooperate with LBNL to gather and report the facts when ORPS or NTS reporting criteria are met.

2. Safety Citation Procedure for Addressing Egregious Noncompliance

- a. When partnering fails to achieve a high level of safety performance, LBNL may implement the Safety Citation Procedure. The intent of this procedure is to enforce compliance, correct repetitive noncompliance issues, or to address noncompliances in which a subcontractor has failed to adequately address the issues raised by LBNL or the subcontractor's own personnel.
- b. The Berkeley Lab PM and CM have sole authority in the execution of the Safety Citation Procedure, but intend that it only be implemented after other efforts to improve job-site safety compliance fail to result in satisfactory performance.
 - i. Safety Citation: At the recommendation from LBNL construction safety personnel or at the discretion of the LBNL CM or PM, a written safety citation may be issued by the LBNL PM to the general contractor (GC). The issuance of a safety citation may be based on the severity of a single noncompliance or a trend of identified noncompliances that the subcontractor has inadequately addressed. The safety citation puts the GC on notice that effective corrections must be implemented immediately and identifies any potential consequences. Consequences may include, but are not limited to, simple work process adjustments, stop work actions, removing subcontractor workers from LBNL sites, financial penalties, and termination of the subcontract.

Work Process Q. Work-Site ES&H Observations

1. General

- a. EHS Division Construction Safety Engineers and Facilities Division Construction Management conduct routine observations of construction work sites to identify and correct unsafe workplace conditions and behaviors.
- b. Both "at risk" and "safe" conditions and behaviors are identified during the observations.
- c. These conditions are recorded in a construction safety observation database that is used to track and report trends in construction-safety performance.

2. Determining Classification of At-Risk Observations

- a. The observer classifies each at-risk condition or behavior as de minimis (e.g., insignificant), low, medium, or high, and enters it into the construction safety observation database.
- b. Classification of at-risk observations are assigned by the observer based on a risk-assessment methodology that uses a 4x4 matrix of impact and probability.
- c. The risk-assessment table is based on the Risk Registry Risk Assignment Matrix found in Appendix P of the Berkeley Lab Facilities Division, Construction Projects Department, *Project Management Manual*.

At-Risk Observation Classification Risk Assessment Table

	No Injury	First Aid	Medium Severity	High Severity
High Probability	De minimis	Medium	High	High
Medium Probability	De minimis	Low	Medium	High
Low Probability	De minimis	Low	Low	Medium
No Probability	De minimis	De minimis	De minimis	De minimis

3. **Construction Safety Observation Relationship to the Occurrence Reporting and Processing System (ORPS) and Noncompliance Tracking System (NTS) Reporting.** All medium-risk and high-risk construction safety observations are reported to the appropriate responsible individuals for review as possible ORPS or NTS reportable events.

10.8 Source Requirements

Subcontractors must comply with requirements; in case of conflict or overlap of the references below, the most stringent provision must apply.

Source Requirements Documents

- 10 CFR 851, Worker Safety and Health Program
- Occupational Safety and Health Act (OSHA)
- 29 CFR Part 1904, Recording and Reporting Occupational Injuries and Illnesses
- 29 CFR Part 1910, Occupational Safety and Health Standards, Department of Labor
- 29 CFR Part 1926, Safety and Health Regulations for Construction, Department of Labor
- 29 CFR 1910 Occupational Safety and Health Standards and ACGIH Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices
- National Electrical Safety Code, ANSI C2
- National Fire Protection Association (NFPA) 51B, Fire Prevention During Welding, Cutting, and Other Hot Work (2014 edition)
- NFPA 70 National Electrical Code; and (h) NFPA 70E Standard for Electrical Safety in the Workplace (version referenced in the LBNL ES&H Manual [PUB-3000])
- NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations (2013 edition).
- Lawrence Berkeley National Laboratory Requirements and Policies Manual, [Construction Health & Safety policy](#)
- Lawrence Berkeley National Laboratory [Construction Safety Requirements Manual](#)
- Lawrence Berkeley National Laboratory [Electrical Safety Requirements Manual](#)
- 40 CFR Part 763, Asbestos
- Clean Air Act

- Clean Water Act
- Resource Conservation and Recovery Act
- Toxic Substances Control Act
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values for Chemical Substances and Physical Agents (most current version)

Other Driving Requirements

California Code of Regulations:

- Bay Area Air Quality Management District (BAAQMD) Rules, Regulations, and Manual of Procedures, including Diesel Vehicle Idling Rules, On- and Off-Road Diesel Vehicle Regulations, and CEQA Guidelines
- California Department of Public Health
- East Bay Municipal Utility District Ordinances 40 CFR Parts 122 through 125, National Pollutant Discharge Elimination System (i.e., water quality). California's General Permit for *Storm Water Discharges Associated with Construction and Land Disturbance Activities* (Construction General Permit), as specified in the State Water Resources Control Board (SWRCB) Order No. 2009-0009-DWQ (as amended by 2010-0014-DWQ and 2012-0006-DWQ) and California's General Permit for *Storm Water Discharges Associated with Industrial Activities excluding Construction Activities*, as specified in the SWRCB Order No. 2014-0057-DWQ
- California Fire Code (2010 edition)
- Title 8, Division 1, Chapter 4, Industrial Safety Article 15
- Title 13, Division 2, Chapter 6, Hazardous Materials for Transportation by Commercial Carriers
- Title 17, Division 3, Air Resources
- Title 19, Public Safety
- Title 22, Divisions 4 and 4.5, Hazardous Waste;
- Title 23, Division 3, Water Quality
- Title 23, Division 5, Hazardous Materials
- ANSI Z359 Fall Protection
- ANSI Z88.2 Respiratory Protection
- ANSI Z136.1 Safe Use of Lasers
- ANSI Z49.1 Welding, Cutting, and Allied Processes

10.9 Reference Documents

Document number	Title	Type
07.07.011.001	ES&H Manual, <i>Electrical Safety Program</i>	Program
07.07.020.001	ES&H Manual, <i>Lockout/Tagout Program</i>	Program
07.11.001.001	ES&H Manual, <i>Fire Prevention and Protection</i>	Program
07.07.024.001	ES&H Manual, <i>Personal Protective Equipment</i>	Program
07.07.008.001	ES&H Manual, <i>Cranes, Hoists, and Rigging Safety</i>	Program
07.07.008.001	ES&H Manual, <i>Forklifts and Other Powered Industrial Trucks</i>	Program
07.07.014.001	ES&H Manual, <i>Fall Protection Program</i>	Program

07.07.006.001	ES&H Manual, <i>Confined Spaces</i>	Program
07.07.002.001	ES&H Manual, <i>Asbestos Hazards and Controls</i>	Program
07.07.019.001	ES&H Manual, <i>Lead Hazards and Controls</i>	Program
07.07.001.000	ES&H Manual, <i>Elevated Work — Aerial Work Platforms, Ladders, and Scaffolds</i>	Program

10.10 Appendix A. LBNL Construction Safety Manual

Click [here](#) to download a PDF of the LBNL Construction Safety Manual.

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