Worker Safety & Health Program

Lawrence Berkeley National Laboratory

Submitted By:

6/2/2008

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Executive Summary

Title 10 of the Code of Federal Regulations, Part 851 (10 CFR 851), Worker Safety and Health Program, requires Department of Energy (DOE) sites to establish a worker protection program that will reduce or prevent the potential for injuries, illnesses, and accidental losses by providing workers with a safe and healthful workplace. This document describes the Worker Safety and Health Program (WSHP) that has been developed at Lawrence Berkeley National Laboratory (LBNL, also referred to as the Ernest Orlando Lawrence Berkeley National Laboratory or Berkeley Lab), a DOE site, to comply with 10 CFR 851. The LBNL Worker Safety and Health Program is referred to as either "the WSHP" or "the Program" and 10 CFR 851 as "the Rule."

The Ernest Orlando Lawrence Berkeley National Laboratory is a multi-program national research and development laboratory managed by the University of California for the U.S. Department of Energy (DOE). Berkeley Lab is located on land belonging to the Regents of the University of California and operated primarily with funding from DOE. The Lab performs research in advanced materials, life sciences, computing sciences, energy efficiency, detectors, and accelerators to serve the United States' needs in technology and the environment. It is organized into 17 scientific divisions and hosts four national user facilities. Berkeley Lab employs roughly 3,000 personnel, of which about 800 are students. Each year, the Laboratory also hosts more than 3,000 participating guests.

The Rule, and thus the Program, applies to design, construction, operation, maintenance, decontamination and decommissioning, research and development, and environmental restoration activities at the LBNL Main Site, Donner Laboratoy on the UC Berkeley main campus, the Production Genomics Facility of the Joint Genome Institute (JGI) in Walnut Creek, Berkeley Biosciences West in Berkeley, National Energy Research Scientific Computing (NERSC),Center, the Joint BioEnergy Institute, (JBEI,) in Emeryville and other LBNL leased spaces as defined in the Program.

The Program does not address radiological or environmental hazards associated with DOE activities. References to environment, safety, and health (ES&H) in this document are limited to the protection of workers from workplace safety and health hazards. Environmental management is outside the scope of the Program.

The Rule is implemented by the Program, which integrates the safety and health regulations and standards required by the Rule, components of the LBNL Integrated

Safety Management System (ISMS), and other components of the LBNL ES&H Program. The Program is in turn implemented by LBNL documents that interface with workers, such as applicable sections of PUB-3000 (Safety & Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111). The documents that are cited in this document are incorporated by reference, not including the references cited in the incorporated documents. Citations of specific sections of the Integrated Safety Management System, PUB-3000, the RPM or the OQMP refer to the most current version of these documents as of the date of publication of this document, the LBNL Worker Safety and Health Program.

The major aspects of the Program are:

- Management responsibilities, including ensuring that workers are qualified for their assignments, accountability, reporting events and hazards and responding to such reports, informing workers of their rights, and safety and health communications
- Worker rights, including participating on official time, access to information, observation of monitoring, notification of monitoring results, accompanying inspections, addressing concerns without fear of reprisal, refusing to work, and stopping work
- Worker responsibilities, including safety and reporting hazards, injuries, and illnesses
- Identification and assessment of hazards associated with work activities and facilities
- Controls to prevent and abate hazards associated with work activities and facilities
- Safety and health standards
- LBNL Training Program, its goal is to ensure that all workers have the skills, knowledge, and abilities to carry out their responsibilities safely
- Recordkeeping and reporting
- Resolving noncompliance conditions
- Enforcement of the Rule

- LBNL programs and their implementation mechanisms in construction safety, fire protection, pressure safety, electrical safety, industrial hygiene, occupational medicine, biological safety, and motor vehicle safety

The Rule requires an annual review of the WSH Program and, if necessary, revision of this document to address changes that may have occurred. During 2007 the ISMS Management Plan was completely rewritten so all references to that foundational document were updated in this plan. Substantial improvements are being made in the flow down of WSH requirements to subcontractors as expressed in Section 1.6. The Job Hazard Analysis process has undergone a substantial improvement addressing hazard analysis, worker communication and work authorization (Section 10). Issues surrounding variances, equivalencies and the Authority Having Jurisdiction (AHJ) concept and practice have been addressed and resolved as described in Section 12. Control strategies for hazards associated with engineered nanostructures have become more formal as described in Appendix F-11.

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Record of Revisions

Rev. No.	Date	Description
1	May 2008	• Updated references to account for Rev 6. of PUB-3140,ISMS Management Plan of September 2007 and for revision made to PUB-3000 throughout the year (throughout document) • Expanded JHA Program Discussion (Sec. 7.6) to address current implementation of this program, which was a pilot in 2007; references to JAQ process replaced by JHA (Sec. 10) • Updated Section 12. Variances…, to address updates made to Electrical AHJ delegation and clarifications made for other subjects • Updated list of Closure Facilities (Sec 7.9 & Appx E), list of LBNL Offsite Leased Facilities (Appx B), and added MOU for JBEI to Appendix C. • Added Appendix F-11 for Engineered Nanoparticles • Minor housekeeping revisions made throughout.

1. Introduction

Title 10 of the Code of Federal Regulations (CFR), Part 851 (10 CFR 851), Worker Safety and Health Program, requires Department of Energy (DOE) sites to establish a worker protection program that will reduce or prevent the potential for injuries, illnesses, and accidental losses by providing workers with a safe and healthful workplace.

This document describes the Worker Safety and Health Program (WSHP) that has been developed at Lawrence Berkeley National Laboratory (LBNL), a DOE site, to comply with 10 CFR 851. The Program includes the regulations and standards specifically required by 10 CFR 851, and elements of the LBNL Integrated Safety and Management System (ISMS).

In this document, the LBNL Worker Safety and Health Program is referred to as "the WSHP" or "the Program" and 10 CFR 851 as the "the Rule." Appendix A contains a glossary of the acronyms and key terms used in this document.

1.1 Work Activities

The work at LBNL focuses primarily on energy and the environment; biosciences and biotechnology; and fundamental science and applied technology.

Since its inception, Berkeley Lab's location on the hillside above the University of California at Berkeley has offered a unique opportunity for scientific and academic partnerships and has helped to foster the academic excellence that is the hallmark of the Lab's scientific endeavors. Of Berkeley Lab's staff of approximately 3,000, more than 250 faculty/scientists hold joint appointments with UC Berkeley and other UC campuses. In addition, nearly 800 students and postdoctoral fellows are employed each year, along with more than 3,000 participating guests from institutions around the world.

In addition to its fundamental research, Berkeley Lab's research centers and user facilities provide intellectual resources, services, infrastructure and unique experimental facilities not found anywhere else in the world. They include the Advanced Light Source, the National Energy Research Scientific Computing Center, the Energy Sciences Network, the Molecular Foundry, the National Center for Electron Microscopy, the Joint Genome Institute and, the Joint BioEnergy Institute.

1.2 Locations

As of May 2008, 10 CFR 851 and this Program apply to work at the following LBNL locations:

- LBNL Main Site
- Donner Hall on the UC Berkeley main campus
- Joint Genome Institute (JGI) in Walnut Creek
- Berkeley Biosciences West (Potter Street) in Berkeley
- National Energy Research Scientific Computing Center (NERSC)
- Joint BioEnergy Institute (JBEI) in Emeryville
- Other spaces leased for LBNL as defined in Appendix B

1.3 Workforce

In 2008, LBNL has approximately 3,000 full-time employees, including approximately 2000 scientists and engineers. In addition, nearly 800 students and postdoctoral fellows are employed each year, along with more than 3,000 participating guests from institutions around the world.

1.4 Purpose

The purpose of the Worker Safety & Health Program is to ensure that LBNL provides a safe and healthful workplace in which hazards are abated, controlled, or otherwise mitigated, providing reasonable assurance that workers are adequately protected from identified hazards that can potentially cause physical harm or death.

1.5 Scope

The LBNL Worker Safety and Health Program applies to DOE contractor activities that are performed at the LBNL sites (including JGI and JBEI, see note below) listed in Section 1.2 and Appendix B of this document. The Rule defines a contractor as “any entity, including affiliated entities, such as a parent corporation, under contract with DOE, including a subcontractor at any tier, with responsibility for performing work at a DOE site in furtherance of a DOE mission.” The Rule and thus the Program apply to design, construction, operation, maintenance, decontamination and decommissioning, research and development, and environmental restoration activities performed at LBNL-controlled sites.

LBNL is a single DOE contractor worksite, and the multi-DOE contractor workplace coordination requirements contained in Section 851.11(a)(2)(i) and (ii) of the Rule do not apply.

There is a Memorandum of Understanding that provides specific guidance on ES&H responsibilities and coordination between JGI and the two managing laboratories (Lawrence Berkeley National Laboratory and Lawrence Livermore National Laboratory). Appendix A of the MOU specifically assigns responsibility for providing 10 CFR 851 compliance oversight to LBNL. JBEI will utilize the LBNL WSHP to provide a framework for a comprehensive program to reduce injuries, illnesses, and enhance safety performance at the JBEI facility

References:

- November 7, 2006 JGI Memorandum of Understanding (Regarding ES&H)
- Joint BioEnergy Institute Environment, Safety & Health (ES&H) of 11/19/2007

1.6 Flow Down of 851 Requirements to Subcontractors

LBNL employs a number of subcontractors to perform work at LBNL sites, and it is the expectation and requirement that all subcontractors comply with the provisions of 10 CFR 851 Worker Safety and Health Program. LBNL flows down this expectation and requirement to subcontractors and their employees through contract language. In the contract, LBNL specifically requires subcontractors to meet the requirements of 10 CFR 851. This flow down of safety and health requirements to subcontractors ensures that the safety and health activities of subcontractors are integrated with Laboratory activities.

For subcontractors whose work tasks present a safety and health risk above negligible, LBNL sets criteria for reviewing their written safety and health plan before work begins. Requisitions for on-site services are placed through the Berkeley Lab Procurement Department. The Procurement Department utilizes a Web-based procurement program (ePro) to facilitate the requisition process. A Designated Commercial Services (DSC) list identifies common tasks subcontractors perform that are judged to present negligible risk. A subcontractor safety plan submittal is required for all on-site work that is not on the DSC list. Requisitions for selected

services an the DSC are reviewed by ES&H for potential risk of injury, illness, or damage to the environment or property. If the potential risk is above negligible, the Procurement Department then requires the subcontractor to submit a written safety and health plan for concurrence by the LBNL EH&S Division. The plan is reviewed by an occupational safety professional within the Occupational Safety Group in the EH&S Division. No work shall begin until the subcontractor's written safety and health plan is approved by the EH&S Division.

References:

- LBNL Procurement Procedure: Guide for On-Site Subcontractor Safety Plans

1.7 Coordination with Labor Organizations

In the development of the Laboratory's Worker Health and Safety Plan, LBNL believes that it is important to seek input from labor organizations that represent Laboratory employees as well as non represented LBNL employees. As such, it is LBNL's desire to communicate the development and implementation of the Laboratory's Worker Health and Safety Plan. Where the plan affects the terms and conditions of employment and as requested by the union, LBNL will meet and discuss or confer consistent with applicable Federal and State labor laws, and a copy of the approved Plan will be provided to employee representatives at no cost. Prior to the submittal of subsequent updates of the Plan, or whenever there is a significant change, LBNL will meet with employee representatives to give them timely notice to seek comments and input. Under the Laboratory's Health and Safety Plan, employee representatives will be able to exercise their rights as laid out in the Plan including accompanying the DOE Director or his authorized personnel during the physical inspection of the workplace for the purpose of aiding the inspection.

1.8 Exclusions

The Program does not address radiological or environmental hazards associated with DOE activities. Radiological hazards are addressed in 10 CFR 820, 10 CFR 830, and 10 CFR 835 in a comprehensive manner through methods such as the Quality Assurance Program, Radiation Protection Program, safety basis, and documented safety analysis.

References to environment, safety, and health (ES&H) in this document are limited to the protection of workers from workplace safety and health hazards. Environmental management is outside the scope of the Program.

The Program does not apply to DOE activities performed away from DOE sites, such as transportation activities to and from DOE sites, and does not apply to work at locations that are regulated by OSHA, such as research field work conducted at locations not at a definable address.

This program also does not apply to LBNL related work occurring in UCB campus space that is carried out in accordance with the "PARTNERSHIP AGREEMENT BETWEEN UCB AND LBNL CONCERNING ENVIRONMENT, HEALTH AND SAFETY POLICY AND PROCEDURES" dated 3/15/2004, updated in June 2007. This document delineates responsibility and oversight of safety requirements for work carried out in LBNL and campus spaces. It establishes a clear expectation that LBNL managers will take the initiative in following locally applicable ES&H rules, and specifies that work carried out at LBNL, including Donner Laboratory, is carried out in accordance with LBNL rules, and that work carried out at UCB is governed by UCB rules.

References:

- ISMS Management Plan, Section 5.8 Interface with UC Berkeley ES&H Department
- Partnership Agreement Between UCB and LBNL Concerning Environment, Health and Safety Policy and Procedures, updated June 2007

Comment [WW1]: Insert Link

1.9 DOE-SC Berkeley Site Office Manager

The DOE-SC Berkeley Site Office Manager is Aundra Richards.

1.10 DOE Approval

The first WHS Program Document had to be submitted to the Site Manager of the DOE-SC Berkeley Site Office by February 26, 2007, and approved no later than May 25, 2007 or no further work could be performed. Thereafter, on an annual basis LBNL must submit to the DOE-Berkeley Site Office Manager either an updated Worker Safety and Health Program for approval, or a letter stating that no changes are necessary in the currently approved Program.

1.11 Revisions

Significant revisions to the Program must be submitted to the Site Manager of the DOE-SC Berkeley Site Office for approval. A revision is considered significant when it is needed to ensure that the Program accurately reflects actual workplace activities, hazards, controls, and approved Program roles and responsibilities.

The first WSH Program Document was approved April 27, 2007. The 2008 review resulted in sufficient changes that a revision of the Progrm Document was considered to be necessary. This document, Revision 1, includes the revisions necessary to update the description to current conditions. For a list of changes see the Record of Revisions.

2 Compliance

LBNL must comply with all the requirements of the Rule. Compliance is achieved by the LBNL Worker Safety and Health Program, as described in this document, which incorporates relevant sections of documents such as PUB-3000 (Safety & Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111).

2.1 LBNL ES&H Program

Pursuant to LBNL Contract Number DE-AC02-05CH11231, LBNL has an established ES&H Program. The ES&H Program has been used as the foundation for the development of the LBNL Worker Safety and Health Program that is described in this document.

2.2 Integrated Safety Management System

LBNL is required by DOE Policy 450.4 and its operating contract to have an Integrated Safety Management System (ISMS) in place. DOE and its contractors such as LBNL are committed to achieving a work environment in which all operations and work activities are supported by safety management systems that ensure the protection of the public, the worker, and the environment. Integrated Safety Management (ISM) is a systematic approach to integrating safety into management, work planning, and execution at all levels. The principles, core functions, and goal that the ISMS is founded on, in part, are shown in Figure 1.

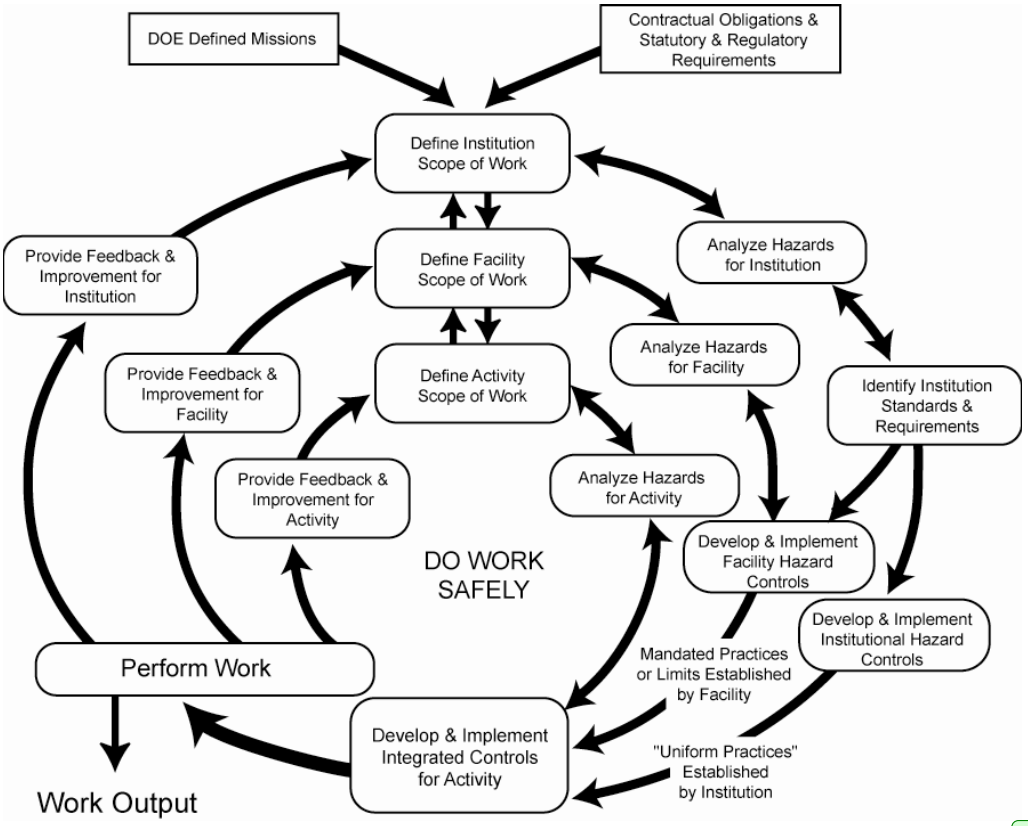


Figure 1. LBNL ISMS

Comment [WW2]: Inserted Figure 6.1 from LBL ISMS Management Plan Revision 6 of Sept 24, 2007.

The ISMS is articulated in the LBNL Integrated Safety Management System Plan (ISMS Plan). Institutional requirements for all work activities at LBNL are contained in the ISMS Plan and implemented by referenced chapters and sections of PUB-3000 (Safety and Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111). The ISMS Plan is maintained by an annual update approval process.

2.3 Enforcement Process & Compliance Orders

DOE may initiate and conduct investigations and inspections relating to the scope, nature and extent of compliance by LBNL with 10 CFR 851. Additionally, any worker or worker representative may request that DOE initiate an investigation or inspection. DOE Enforcement Officers have the right to enter work areas without delay, to the

extent practicable, to conduct inspections. LBNL will fully cooperate with DOE during all phases of the enforcement process and provide complete and accurate records and documentation as requested during investigation or inspection activities. DOE must inform LBNL of the general purpose of the investigation or inspection in writing at the initiation of the investigation or inspection.

Should DOE initiate an enforcement action as the result of an investigation or inspection, LBNL will respond to the enforcement action in the following manner as appropriate and as specified in Sections 851.40, 851.41, 851.42, 851.43 and 851.44 of the Rule:

- Request a settlement conference
- Respond to a consent order
- Respond to a Preliminary Notice of Violation
- Respond to a Final Notice of Violation
- Petition the Office of Hearings and Appeals for review of a Final Notice of Violation
- Respond to a Compliance Order

In accordance with Section 851.4 of the Rule, the Secretary may issue to any contractor a Compliance Order that: (1) identifies a situation that violates, potentially violates, or otherwise is inconsistent with a requirement of the Rule; mandates a remedy, work stoppage, or other action; and (3) states the reasons for the remedy, work stoppage, or other action. A copy of any such Compliance Order issued by the Secretary will be prominently posted by LBNL at or near the location where the violation, potential violation, or inconsistency occurred until it is corrected.

3 Implementation

As shown in Figure 2, there are two tiers of implementation. In the first tier, 10 CFR 851 is implemented by the LBNL Worker Safety and Health Program, which incorporates the regulations and standards required by 10 CFR 851, components of the LBNL ISMS, and other components of the ES&H Program. As described in the

Rule and to fully implement the Rule, specific portions of existing programs and additional requirements as necessary are identified in the Program.

In the second tier, the Program is implemented by the documents that interface with workers, such as applicable sections of PUB-3000 (Safety & Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111). These documents contain information on how the management practices prescribed by the LBNL ISMS are implemented, how hazards that are associated with LBNL work activities are identified, how such hazards are controlled, and who is responsible for implementing the controls.

In this Program, the ISMS Plan is cited as the first-tier implementation document, with PUB-3000 (Safety and Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111) cited as second-tier implementation documents.

The documents that are cited in this Program are incorporated by reference, not including the references cited in the incorporated documents. Where specific subsections of documents are cited, only those subsections are incorporated by reference. Citations of specific sections of the ISMS Plan, PUB-3000 (Safety and Health Manual), the Regulations and Procedures Manual (RPM), and the Operating and Quality Management Plan (OQMP, PUB-3111) refer to the most current version of these documents as of the date of publication of this document, the LBNL Worker Safety and Health Program (WSHP).

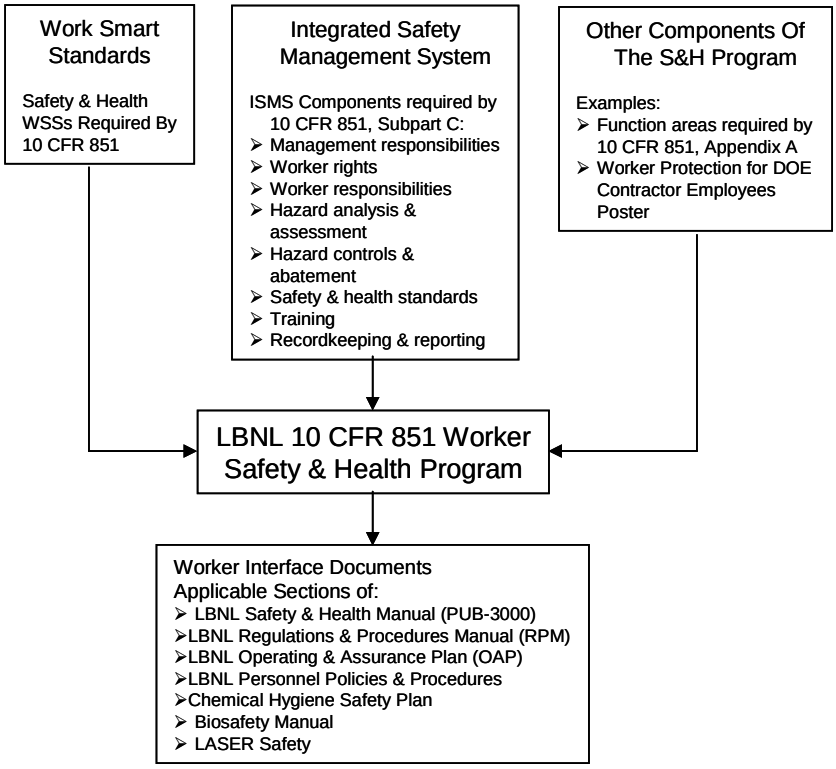


Figure 2: Two-Tiered Implementation of 10 CFR 851

4 Management Responsibilities

4.1 Safety Policy, ISMS Guiding Principles, ES&H Goals, and ES&H Objectives

It is the policy of Lawrence Berkeley National Laboratory to provide a safe and healthful working environment for its employees, participating visitors, and other visitors; to prevent any harm to the health and safety of the general public or to the environment as a result of the Laboratory's activities; and to protect its property from damage or loss due to accidents or other causes.

References:

- PUB-3000, Chapter 1, Section 1.2
- RPM, Section 7.01(A)

Additionally, it is the policy of Lawrence Berkeley National Laboratory to conduct activities that contribute to its scientific and operational objectives in accordance with sound quality assurance and conduct of operations principles. These principles, as described in the Laboratory's Operating and Quality Management Plan (PUB-3111, OQMP), are the basis for the Laboratory's standards for organization, process management, and performance assessments. Application of OQMP principles is based on a graded approach, with consideration given to the unit's mission, its programmatic or operational significance, and its environment, safety, and health consequences to personnel, environment and the general public.

References:

- OQMP, PUB-3111, Objectives and Applicability
- RPM, Section 8.01(A)

Comment [WW3]: Insert Link.

Berkeley Lab is committed to performing all work safely and in a manner that strives for protection for employees, participating guests, visitors, subcontractors, the public, and the environment, commensurate with the nature and scale of work. In addition, Berkeley Lab seeks continuous improvement and sustained excellence in the quality of all ES&H programs.

To achieve these goals, Berkeley Lab has adopted the seven guiding principles and five core functions of the Integrated Safety Management System (ISMS), as prescribed in Department of Energy DEAR Clause 970.5204-2, which are reflected in the LBNL's detailed policies and procedures.

References:

- ISMS Management Plan, Chapter 4.0 ISMS System Overview
- PUB-3000, Chapter 1, Section 1.3
- PUB-3000, Chapter 2, Section 2.1

Comment [WW4]: Insert Link

Annual fiscal year safety & health performance objectives for LBNL are established within the UC-DOE Contract (Contract No. DE-AC02-05CH11231). These fiscal year contract performance objectives are then subsequently reflected in LBNL's annual performance year Divisional Self Assessment performance objectives and criteria.

The FY 2008 safety & health performance objectives as stated in Appendix B, Goal 5 of the 2006 UC-DOE Contract includes:

Comment [WW5]: Update Reference

- Provide a Work Environment that Protects Workers and the Environment
- Provide Efficient and Effective Implementation of Integrated Safety, Health and Environmental Management
- Provide Efficient and Effective Waste Management, Minimization, and Pollution Prevention

References:

- PEMP, Appendix B, Attachment J-2, FY 2007 Performance Evaluation & Measurement Plan (Contract No. DE-AC02-05CH11231), Appendix B – Management & Operations Component, Goal 5
- PUB-3105, Division ES&H Self-Assessment Manual

Comment [WW6]: Update Link to current PEMP http://www.lbl.gov/DIR/OIA/assets/docs/OCA/ContractMeasures/Section%20J%20Appendix%20B%20M052%20FY08%20PEMP.pdf

Institutional and Divisional safety & health performance goals and objectives are directly achieved through the application of the seven ISMS principles and implementation of the five ISMS core functions at each level of organization at Berkeley Lab: at the institutional level, at the division or department level, and at the individual projects or work activities level.

References:

- ISMS Management Plan, Section 6.1 [ES&H Management System Mechanisms] Introduction
- PUB-3105, Division ES&H Self-Assessment Manual, 4.0 Division Self-Assessment Program

Comment [WW7]: Insert Link

Comment [WW8]: Insert Link

Division ES&H plans describe in detail how work is reviewed and authorized at the activity or project level to determine and assure line management, supervisory, and employee safety responsibilities are identified and implemented; they also address qualifications and training, as well as engineering and procedural requirements.

References:

- ISMS Management Plan, Section 4.5 Institution and Division ISMS Interface

4.2 Qualified Worker Safety & Health Staff

LBNL strives to hire and retain qualified worker protection staff to direct and manage the worker safety and health program. LBNL has established specific skill

requirements for every level of Health and Safety Professionals to ensure that each applicant hired possesses the qualifications necessary to effectively perform the duties of their position.

The LBNL Worker Safety and Health Plan is managed and directed by the Occupational Safety Group Leader,a Certified Safety Professional (CSP), or equivalent, in accordance with Section 851.20(a)(2).

References:

- Salary Administration, Appendix, 230.1 – 230.4, Job Family: Environmental, Health & Safety Professional (Access restricted to LBNL internal use)

4.3 Accountability

The Laboratory Director has the ultimate responsibility for safety at the Laboratory, and in particular, for the establishment and administration of environment, health, and safety policies that meet the requirements of the Department of Energy.

The Laboratory Director has delegated to all levels of management the authority to implement the health, safety, and emergency-preparedness policies of the Laboratory.

Reference:

- RPM, Section 7.01(B)

Line management is responsible and accountable for the protection of the public, the workers, and the environment. More specifically, laboratory line managers are responsible for integrating ES&H into work activities and for ensuring active, rigorous communication up and down the management line with the workforce.

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.1
- ISMS Management Plan, Section 6.2.1 ISMS Guiding Principle 1—Line Management Responsibility for Safety
- HR Position Description, Forms, Position Description, Institutional Duties & Responsibilities
- EH&S LBNL Performance Review and Development (PRD) Process

To ensure that Program responsibilities are assigned and that workers are held accountable for safety and health performance, managers and supervisors are required to:

- Ensure that the Laboratory's environment, health, and safety policies are being observed within their divisions. They are also responsible for adhering to the five core functions of the Laboratory's ISM plan.
- Ensure that all workers reporting to him or her understand the ES&H expectations, governing work controls, and the means by which they can safely and successfully perform their assignments.
- Specify Divisional safety and health goals
- Ensure that all employees' performance expectations include specific ES&H criteria
- Appropriately define and manage safety and health issues
- Provide the necessary resources required to accomplish safety & health objectives
- Monitor work to ensure compliance
- Measure and evaluate performance against targets when applicable
- Reward workers for good safety & health performance

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2.5
- RPM, Section 7.01(B)
- RPM, Section 2.05(A)(1)
- EH&S LBNL Performance Review and Development (PRD) Process

Additionally, for all work activities, line management is responsible for ensuring that workers, including participating guests and students, have the skills, knowledge, and abilities, including physical capabilities, to perform their work assignments.

References:

- ISMS Management Plan, Section 6.2.3 ISMS Guiding Principle 3—Competence Commensurate with Responsibilities
- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.4
- OQMP, Section 1, Organization, Subsection 1.3 Staff Proficiency
- RPM, Chapter 2, Sections 2.04(E)(1)(b)

- RPM, Chapter 1, Sections 1.06(A)(1)(c) & (B)(3)(e)
- PUB-3000, Chapter 24, Section 24.8, Subsections 24.8.2 & 24.8.3

LBNL routinely evaluates work performance and the workplace to identify, correct, and prevent problems that may hinder the organization in achieving its scientific and operational objectives. Some of these assessments are required under the terms of the DOE/LBNL Contract between the University and DOE. Assessments can also confirm that objectives and goals are being met. Such assessments include:

- Management Assessments
- Divisional ES&H Self-Assessments
- Peer Reviews
- Independent Assessments
- Corrective Action Review

References:

- RPM, Section 8.01(C)(3)
- OQMP, Section 3. Performance Assessment and Improvement
-

The principal means of establishing and enforcing accountability for safety and health are:

- Communicating safety and health expectations to workers
- Reinforcing expectations through timely verbal feedback
- Conducting formal appraisals and implementing salary actions annually for each employee
- Providing awards and recognition for notable contributions to safety and health taking corrective action in cases of worker misconduct
- Assessing safety and health performance in the employee performance appraisal, including expectations and accomplishments. For managers and supervisors, the performance appraisal includes an assessment of safety and health processes

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2.5
- EH&S LBNL Performance Review and Development (PRD) Process

- Salary Administration Manual, Chapter 5, Performance Awards Program (Access restricted to LBNL internal use)
- RPM, Section 2.05(C)(1)

4.4 Worker Involvement

Worker involvement in safety and health is essential to the success of LBNL's ISMS. Workers are encouraged to identify safety and health concerns and to propose solutions; involvement is actively sought throughout the work review, authorization, and execution process. Line Management must ensure that workers are given the opportunity to participate in the identification and analysis of hazards and the determination of appropriate work controls for work activities.

References:

- ISMS Management Plan, Section 6.2.1.2 Workers Are Responsible for Participating in the Development of the ES&H System and for working according to established Laboratory processes/procedures as Guided by the Expectations, Roles, and Responsibilities Assigned to Them by Line Management
- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3
- PUB-3000, Chapter 6, Section 6.2, Subsection 6.2.1
- PUB-3105, How to Perform Effective Self-Appraisals, The Self-Appraisal Team(s)

Worker involvement is promoted through:

- Participation on Divisional Safety Committees and Safety Review Committee Subcommittees (such as the Traffic and Pedestrian Safety)
- Participation on accident review teams
- "All hands" safety meetings
- Safety spot awards program
- EHS on-line suggestion box and email safety concern programs
- Directorate-level feedback programs
- LBNL newsletters and Web sites
- Participation in Divisional Self-Assessments
- Participation in the Safety Walkaround Program

- Lessons Learned Database

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3
- Divisional Safety Committee Charters (see Safety Committee website of specific Division of interest)
- LBNL Safety Review Committee (SRC), Subcommittee Charters
- Salary Administration Manual, Chapter 5, Performance Awards Program (Access restricted to LBNL internal use)
- EHS Webpage, References, Safety Concerns
- PUB-5344 Environment Safety and Health Self Assessment Program, Chapter 6, Section 6.2
- PUB-3105, How to Perform Effective Self-Appraisals, The Self-Appraisal Team(s)
- LBNL/PUB-5519 (4), Lessons Learned and Best Practices Program Manual, Rev. 0

4.5 Access to Information

Safety and health documents that contain the information needed to perform work safely are readily available via the LBNL Web site or at the worksite to all workers who need access to the information. Safety and health documents are written so that they are readily understandable by the individuals performing and managing the work.

All work, including work by participating guests, students, contract labor, construction contractors and other service contractors is to be performed in conformance with work instructions, including signs, work authorizations, work permits, posted procedures, and other work-authorizing documents. If the work instructions cannot be followed safely as presented, or if they present a new hazard, the worker is responsible for notifying the appropriate individuals and assisting, as appropriate, with modifying the work instruction. The work supervisor is responsible for ensuring that each worker involved in a work activity has been trained in, and has immediate access to, the work activity's applicable procedures and governing documents.

References:

- OQMP, Section 2. Management Systems and Process Controls, Subsection 2.6.2 Written Procedures, Instructions, and Drawings
- OQMP, Section 2. Management Systems and Process Controls, Subsection 2.2 Safety Management
- ISMS Management Plan, Section 6.2.2 ISMS Guiding Principle 2—Clear Roles and Responsibilities
- ISMS Management Plan, Section 6.2.2.3 LBNL's Commitment to Safety and Stewardship of the Environment through ISM Is Extended to Subcontractors and Subcontract Employees for Whom LBNL Has ES&H Responsibility by Describing Clear Roles and Responsibilities

Workers have access to information that is related to the Program and to the performance measurement of safety and health.

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3
- ISMS Management Plan, Section 9.2 Performance Objectives and Performance Measures
- OCA Webpage, Contract Measures, ES&H Gradients and Protocol
- OCA Webpage, ES&H Assurance, Annual ES&H Self-Assessment Reports

4.6 Reporting Incidents and Hazards

LBNL has established procedures for workers to report, without reprisal, job-related injuries, illnesses, fatalities, incidents, and hazards, and to make recommendations about appropriate ways to control the hazards.

Employees may file a concern directly with their division director, department head, immediate supervisor or work lead, principal investigator or division safety coordinator, as well as seek assistance from LBNL Office of Contract Assurance (OCA), EHS Liaison, or the Department of Energy. Persons reporting hazards or improper activities are fully protected by the law and Lab policy against retaliation.

Federal law prohibits LBNL from making reprisals against workers who raise safety concerns. Under 10 CFR 708, Contractor Employee Protection Program, employees of DOE contractors have the right to file (confidential or not) complaints with DOE. This

may be done through the local DOE office or through a DOE Employee Concerns Program hotline within 60 days. It includes, but is not limited to, issues regarding safety and health. Workers may also file a complaint with the DOE Inspector General. Workers also have access to UC whistleblower procedures for reporting events and hazards.

References:

- ISMS Management Plan, Section 6.7.1.1 Work Activities Are Monitored
- PUB-3000, Chapter 1, Section 1.6
- RPM Section 2.05 (K)(II)(B)
- LBNL Safety Concerns Web Page & Email
- LBNL Internal Whistleblower Hotline
- EH&S Suggestion Box

4.7 Responding to Reports

Reports of incidents or recommendations are responded to promptly.

Workers are responsible for bringing safety and health concerns promptly to the attention of the appropriate manager or supervisor for resolution. Line management is then responsible for investigating the concern and implementing corrective action. If a satisfactory response is not received, the senior manager for the organization should be contacted, followed by the Director of Environmental, Health & Safety.

Reference:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2, Sub subsection 1.3.2.5
- PUB-3000, Chapter 1, Section 1.6

4.8 Safety & Health Communications

Communication is a key element in ensuring that the LBNL ES&H goals and health and safety requirements are met. LBNL has an established, comprehensive ES&H Communications Program that includes training all workers. Communication goals include creating ISMS awareness and sensitizing workers to safety and health issues, using Laboratory-wide communications and tailored training.

Divisions employ several methodologies to ensure that ES&H communication is a two-way exchange between management and staff. The most common form of communication is the division safety committee, but management frequently communicates about ES&H with staff through other means as well. Some examples

are: town-hall or all-hands meetings that include safety on the agendas; including safety on the agendas of regular senior management meetings; and Group meetings that include safety topics.

Safety & health communications are accomplished through the EH&S Division website, Today at Berkeley Lab (TABL) articles, Divisional EH&S websites and Divisional newsletters and automatic dissemination of lessons learned and best practices via the Lessons Learned database.

Part of the LBNL ES&H philosophy is that supervisors are expected to ensure that all workers reporting to them, including participating guests and students, understand the expectations related to safety and health, the governing work controls, and the means by which workers can safely and successfully perform their assignments.

References:

- ISMS Management Plan, Section 6.2.1.2 Workers Are Responsible for Participating in the Development of the ES&H System and for working accordaing to established Laboratory processes/procedures as Guided by the Expectations, Roles, and Responsibilities Assigned to Them by Line Management
- ISMS Management Plan, Section 8.7 Communications and Training
- OQMP, Section 1. Organization, Subsection 1.3 Staff Proficiency
- RPM, Chapter 2, Section 2.04(E)(1)(b)
- RPM, Chapter 1, Sections 1.06(A)(1)(c) & (B)(3)(e)
- PUB-3000, Chapter 1, Section 1.3.2, Subsection 1.3.2.5
- PUB-3000, Chapter 32, Job Hazards Analysis
- OIA, OCA, Assurance & reporting Databases, Lessons Learned Database (password required)

Additionally, Divisional and Line Management review deficiencies and issues in operations and facilities identified in self-assessments, audits, reviews, appraisals, and occurrence reports, and determine appropriate corrective actions. The goals of this process are to improve safety in the workplace, maintain compliance with safety and health requirements, prevent recurrences, and reduce risk. From these reviews comes a steady flow of communications designed to keep workers informed and foster an atmosphere in which safety is a routine part of work. Many communication tools and approaches are used to engage workers at all levels, including campaigns to promote awareness of safety and health concerns such as eye protection, machine safeguarding, and bicycle safety; promotion of the online Safety & Health Manual;

and safety and health communications guidance for supervisors, such as the "1 Minute 4 Safety" program.

Lessons Learned are shared to improve operational safety by benefiting from the experience of others. Lessons Learned are prepared and distributed whenever there is an opportunity to share a valuable new work practice or warn others of an adverse practice, experience, or product. The lessons learned process is an integral part of every safety, health, and environment program at LBNL. In every case, it is the intent of the Laboratory to correct on as broad a basis as possible any problems that may arise.

The Lessons Learned Program ensures that incidents, near misses, and other events at LBNL are identified and translated into corrective actions that improve safety performance and prevent recurrence. The Program addresses safe practices as well as practices leading to events or accidents. This program formalizes the communication process and ensures consistent distribution of lessons learned to the LBNL staff and DOE community.

References:

- OQMP, Section 3. Performance Assessment and Improvement, Subsection 3.3. Continuous Improvement, Part 3.3.3 Lessons Learned
- UC Assurance Plan for LBNL, Section 3.1, Subsection 3.1.2
- PUB-3000, Chapter 14, Section 14.2

4.9 Stop Work Authority

Every new employee is informed upon being hired that he or she is empowered to stop work if there is an imminent danger condition. Prompt notification of the immediate supervisor is required. Resumption of work will not proceed until after the condition has been evaluated and the appropriate remedial actions have been taken.

All Berkeley Lab employees, contractors, and participating guests are responsible for stopping work activities considered to be an imminent danger. Stopping unsafe work applies to all activities conducted at the Laboratory and to all offsite facilities operated by Laboratory personnel. An "imminent danger" is defined as any condition or practice that could reasonably be expected to cause death or serious injury, or environmental harm. Whenever an employee, contractor, or participating guest encounters conditions or practices that appear to constitute an imminent danger, such individuals have the authority and responsibility to:

- Alert the affected employee(s) engaged in the unsafe work creating an imminent danger condition, and request that the work be stopped.
- Call Berkeley Lab's emergency telephone number (x7911) and report the incident. The LBNL 24/7 Emergency Notification/Contact Team, 486-6999 will be notified through this contact.
- Notify the immediate supervisor and/or responsible division/department manager (if known).

The LBNL 24/7 Emergency Notification/Contact Team at (510) 486-6999 will ensure that the supervisor is notified and will assist the supervisor in preparing a report to the EH&S Division Director, describing the unsafe activity and identifying corrective actions and responsibilities.

References:

- RPM, Section 701(C), Bullet 3
- ISMS Management Plan, Section 6.7.1.1 Work Activities Are Monitored
- PUB-3000, Chapter 1, Section 1.5
- EH&S Webpage, References, Stop Work Policy

4.10 Informing Workers of Rights

Workers have the right to work in an environment free from recognized hazards likely to cause serious injury or death. Therefore, LBNL will inform workers of their rights by appropriate means, e.g., EH&S classes, communications literature, and the Worker Protection for DOE Contractor Employees poster.

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3
- DOE-designated Worker Protection Poster

4.11 Budgeting For Safety

Enviornmental safety and health is a primary consideration in planning and executing all LBNL work activities. Management is responsible for prioritizing and allocating resources adequately to ensure that ISMS requirements for working safely can be fulfilled. Ensuring that appropriate resources for ES&H are allocated in program and

budget plans and for the implementation of all phases of facility and work-activity processes is critical to making the ISMS operable and sustainable.

Site-wide future work planning for institutional issues is addressed through the Annual Prioritization and Funding Process for General Plant Projects (GPP) and Non-Capital Projects and General Purpose Equipment (GPE). Each year, all research and support divisions are asked to identify and submit their project and equipment requirements for the next several years and to justify their requests. Included in the budget call process are requests for activities necessary to ensure the health and safety of employees and the public, and the protection of the environment. It includes a data management system that contains information regarding all outstanding environment, safety, and health needs.

In response to the budget call, all Laboratory divisions submit a prioritized list of candidates for project and equipment funds. Candidate items with potential ES&H impact are referred to the EH&S Division for review. Each request is completely scoped and then evaluated using two prioritization criteria: the Capital Asset Management Process (CAMP) and the Risk-Based Priority Matrix (RPM) rating system. All candidate items are then reviewed by the Project Coordinating Committee, and recommendations are prepared for LBNL senior management. LBNL senior management adjusts the priorities, if needed, and then presents these recommendations to the Directors Action Committee for final approval.

Reference:

- ISMS Management Plan, Section 6.3.2.1 Resource Planning Processes Ensure Balanced Priorities

5 Worker Rights

The worker rights listed in this section are implemented by PUB-3000 (Safety & Health Manual),and other safety documents (such as the Chemical Hygiene Safety Plan), and the Worker Protection for DOE Contractor Employees poster.

References:

- PUB-3000, Chapter 1, Section 1.3.3, Employee Involvement and Worker Rights

- DOE-designated Worker Protection Poster

5.1 Participating on Official Time

Workers have the right to participate in activities related to the Program on official time, including exercising all worker rights listed in the following Sections 5.2 through 5.8 of this document.

Reference:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3

5.2 Access to Information

Workers have the right of access to:

- DOE safety and health publications
- Documents describing the LBNL Safety and Health Program such as this Worker Safety & Health Program and the ISMS.
- Safety and health standards, controls, and procedures applicable to LBNL, as identified in such documents as the Safety & Health Manual (PUB-3000) and the Chemical Hygiene Safety Plan
- Worker Protection for DOE Contractor Employees poster that informs workers of their rights and responsibilities
- Results of inspections and accident investigations
- Limited information on any recordkeeping log (OSHA Form 300) with access subject to Freedom of Information Act requirements and restrictions
- DOE Form 5484.3 (DOE equivalent of OSHA Form 301) that contains the employees name as the injured or ill worker

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3
- DOE-designated Worker Protection Poster

5.3 Notification of Monitoring Results

Workers have the right to be notified when monitoring results indicate they have been overexposed to hazardous materials.

Written notification of monitoring results is provided by the industrial hygienist conducting the exposure monitoring to the employee (and employee's supervisor) in

accordance with the specific OSHA requirements for that substance. Where no criterion exists, monitoring results will be provided within 15 days of receiving analytical results from the laboratory performing the analyses.

References:

- Chemical Hygiene & Safety Plan
- PUB-3000, Chapter 32, Appendix D
- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3

5.4 Observation of Monitoring

Workers have the right to observe exposure monitoring or measurement of hazardous agents and to be provided with the results of their own exposure monitoring. When personnel exposure monitoring is conducted on individuals, the monitored employee and their supervisor receive a copy of the exposure assessment.

Reference:

- PUB-3000, Chapter 32, Appendix D
- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3

5.5 Inspections

Workers have the right to a representative authorized by workers to accompany the DOE Director or his or her authorized representative during the physical inspection of the workplace for the purpose of aiding the inspection. When no authorized worker representative is available, the Director or authorized representative must consult, as appropriate, with workers on matters of worker safety and health.

Reference:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.3

5.6 Worker Concerns

Workers have the right to express concerns related to worker safety and health.

LBNL has established procedures for workers to report, without reprisal, job-related injuries, illnesses, fatalities, incidents, and hazards, and to make recommendations about appropriate ways to control those hazards.

Federal law prohibits LBNL from making reprisals against workers who raise safety concerns. Employees of DOE contractors have the right to file confidential complaints with the local DOE office within 60 days regarding safety and health issues or reprisals, in accordance with 10 CFR 708. Workers may file a complaint with the DOE Employee ES&H Concerns Program by calling, writing a letter, or submitting DOE Form 5480.4.

Workers also have access to UC whistleblower procedures, which provide a process for reporting events and hazards (http://ucwhistleblower.ucop.edu).

Workers who believe they are being denied the rights described in Section 5 of this document, or believe they are being subjected to reprisals for attempting to exercise those rights, may file a concern following the procedure describe in DOE Order 442.1A, DOE Employee ES&H Concerns Program.

References:

- ISMS Management Plan, Section 6.7.1.1 Work Activities Are Monitored
- PUB-3000, Chapter 1, Section 1.6
- RPM Section 2.05 (K)(II)(B)
- LBNL Safety Concerns Web Page & E-mail
- LBNL Internal Whistleblower Hotline
- EH&S Suggestion Box

5.7 Refusal to Work

Workers have the right to decline to perform an assigned task because of a reasonable belief that the task poses an imminent risk of serious physical harm or death, coupled with a reasonable belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures.

References:

- RPM, Section7.01(C), Bullet 7
- PUB-3000, Chapter 1, Section 1.5 Stopping Unsafe Work

5.8 Stop Work Authority

All workers are empowered to stop work if there is an imminent danger condition. Prompt notification of the immediate supervisor is required. Resumption of work will

not proceed until after the condition has been evaluated and the appropriate remedial actions have been taken.

References:

- PUB-3000, Chapter 1, Section 1.5
- EH&S Webpage, References, Stop Work Policy
- RPM, Section 701(C), Bullet 3
- ISMS Management Plan, Section 6.7.1.1 Work Activities Are Monitored

6 Worker Responsibilities

6.1 Safety

Every worker is directly responsible for ensuring his or her own safety and for promoting a safe and healthful workplace and community.

All workers are to follow ES&H-related work instructions. If work instructions cannot be followed safely as presented, or if they present a new hazard, workers are responsible for notifying the appropriate individuals and assisting, as appropriate, with modifying the work instructions.

Every worker is responsible for (1) understanding the LBNL ES&H goal (see Section 4.1) and participating in its pursuit, (2) determining in concert with others the best way to achieve the ES&H goal in conformance with LBNL requirements, (3) using appropriate resources at his or her disposal, and (4) asking for any help necessary to ensure a safe work environment and reduce environmental impact, while performing the broader set of job responsibilities and pursuing technical, administrative, or craft.

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2.6
- RPM, Section 7.01(B)
- RPM, Section 7.01(C)

6.2 Reporting Hazards

Every worker is responsible for bringing to the attention of his or her immediate supervisor existing or previously unrecognized hazardous conditions and

opportunities for improvement. The supervisor is responsible for evaluating the reports and for taking the appropriate action.

References:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2.6
- RPM, Section 7.01(C)

6.3 Reporting Injuries and Illnesses

Workers who are injured or become ill as a result of a work-related activity or accident are required to notify the work supervisor immediately and to report to Health Services.

References:

- PUB-3000, Chapter 3, Section 3.15
- PUB-3000, Chapter 3, Section 3.22, Subsection 3.22.9

7 Hazard Identification and Assessment

Work conducted at LBNL involves a variety of safety hazards. LBNL manages these hazards using the Integrated Safety Management System (ISMS) and by promoting safe behavior at all work levels.

Line managers implement an integrated safety management process to ensure that safety-related work issues have been addressed comprehensively. Managers follow the requirements in Chapter 6 of PUB-3000, the Berkeley Lab Health and Safety Manual Chapter on Safe Work Authorizations, to identify hazards and implement appropriate controls. Berkeley Lab's EH&S Division and Divisional ES&H personnel provide support and guidance to line managers for identifying and mitigating the hazards in their workplaces.

Line managers perform the following safety functions in support of hazard control efforts:

- Define the scope of work.
- Analyze the hazards.
- Develop and implement controls.
- Perform work within the controls.

- Provide feedback and continuous improvement.

Reference:

- ISMS Management Plan, Section 6.4.1.1 Hazards and Environmental Aspects Are Identified and Analyzed for All Work Activities.
- PUB-3000, Chapter 6, Section 6.2.1, Work Planning: Completion of the Job Hazards Analysis
- OQMP, Appendix B, Integrated Safety Management

7.1 Identifying Workplace Hazards and Assessing Risk

The identification and analysis of workplace hazards is part of the work planning process. The goal of this process is to ensure that the hazards associated with work activities and facility operations are clearly understood and appropriately managed.

All new work activities, changes to existing work or introduction of new equipment or processes (which introduce new hazards or increase the hazard level) need to be reviewed to analyze hazards, identify safety standards/requirements, and establish appropriate controls. Safety conditions and requirements need to be formally established and in place before work is initiated.

References:

- PUB-3000, Chapter 1, Subsection 1.3, Sub subsections 1.3.5 & 1.3.7

7.2 Worker Exposure Assessment

LBNL assesses worker exposure to chemical, physical, biological, or safety workplace hazards through appropriate workplace monitoring, including industrial hygiene exposure assessments and the ES&H Self-Assessment Program.

Exposure assessment is an evaluation process performed by EH&S industrial hygienists and other experts to determine the risk to workers from personnel exposure to hazardous chemical, biological, or physical agents and the adequacy of hazard controls. Results of exposure assessments may be used to validate or improve hazard controls, extend the same controls to other employees who are similarly exposed, provide employees with appropriate medical tests and examinations (i.e., medical surveillance) to monitor employee health, and demonstrate compliance with regulations.

Exposure assessments are conducted as one component of most EH&S programs presented in PUB-3000 that involve potential personnel exposure to hazardous agents or conditions. They may include qualitative or quantitative evaluations of risk. Qualitative exposure assessments involve a professional judgment of risk. These assessments may be conducted when the hazardous agent cannot be practically measured. Quantitative exposure assessments involve measurement (i.e., sampling, surveying, or monitoring) of exposure levels. These assessments may be conducted when the identity of the hazardous agents present can be reasonably determined and sampled for, and if there is insufficient information on the extent of potential exposure or measurement of the exposure level that is required by regulation (e.g., OSHA).

Quantitative exposure assessment results are compared to occupational exposure limits such as OSHA Permissible Exposure Limits (PELs) and ACGIH Threshold Limit Values (TLVs), whichever is lower. Employee exposures are minimized and maintained below required exposure limits. Appropriate controls are implemented when required action limits are reached.

References:

- PUB-5341, Chemical Hygiene Plan, Chemical Hazard Assessments
- PUB-3000, Chapter 32, Appendix D

LBNL's ES&H Self-Assessment Program is a formal, internal process used to evaluate ES&H programs, policies, and processes. The process is designed to ensure that Laboratory work is conducted safely and with minimal adverse effects to workers (employees, participating guests, and subcontractors). The Self-Assessment Program is also the mechanism used to institute continuous improvements to ES&H programs.

The Self-Assessment Program generates targeted performance data through evaluations conducted at all levels (individual workers, operations, facilities, departments, and divisions) of the organization. The data are analyzed against regulatory and contractual requirements to identify ES&H strengths, weaknesses, and opportunities for improvement. Findings are communicated to appropriate line organizations and staff, and corrective actions are implemented and tracked. The program consists of the following core activities:

- Establishment of performance objectives and criteria;

- Assessments and appraisals;
- Development and tracking of actions to correct deficiencies and/or sustain improvements; and
- Reporting self-assessment results and improvements to the LBNL community.

References:

- PUB-5344 ES&H Self Assessment Program

7.3 Documenting & Recording Workplace Assessments

Assessments for chemical, physical, biological, and safety workplace hazards are documented following recognized exposure assessment and testing methodologies and using accredited and certified laboratories where appropriate.

Exposure monitoring results are recorded with documentation that describes the tasks and locations where monitoring occurred, and identifies:

- Workers monitored or represented by the monitoring;
- Sampling methods and durations;
- Control measures in place during monitoring (including use of personal protective equipment);
- Job task and location; and
- Any other factors that may have affected sampling results.

Quality assurance records are maintained and retrievable for the monitoring equipment used.

Reference:

- Comprehensive Tracking System – IH Database (Password Required)
- PUB-5341, Chemical Hygiene Plan, Roles & Responsibilities, EH&S Division
- PUB-3000, Chapter 32, Appendix D

To facilitate the development, tracking, and closeout of corrective actions identified during ES&H self-assessments, a computerized database called the Corrective Action Tracking System (CATS) is used. The CATS database documents and tracks the following information:

- Identification of the assessment, type, and date;

- Description of each finding to be corrected, including location
- Description of the interim measures taken to protect workers;
- Description of the corrective action task(s) for each finding;
- Identification of the responsible person with the authority to complete each task;
- Schedule, including applicable milestones, for the completion of each task; and
- The person accountable for implementation and closeout of the corrective actions for the particular assessment. This individual, referred to as the "approver," must have the authority to bring about the necessary improvements and is typically a senior division manager, division safety coordinator, or EH&S functional manager.

References:

- PUB-5344 ES&H Self Assessment Program

7.4 New Construction and Facilities Modifications Design Review

New construction projects and facilities modifications are reviewed for hazards and risks, and to ensure that appropriate ES&H requirements are integrated into the planned project or facility. ES&H requirements identified through this process are incorporated into the project's design. EH&S Division participation in this process is covered by an interface policy between the EH&S and Facilities Divisions (Memorandum of Understanding).

EH&S Division professionals are assigned review and concurrence authority in all four phases of project design: conceptual design, preliminary design, final design, and construction inspection.

The level of formality and complexity of the design review process is directly related to the size and complexity of the project. As the hazards and risks associated with a new facility design or modification increase, the formality, documentation, and general level of effort increase.

References:

- ISMS Management Plan, Section 6.3.1.2, The Graded Approach Process Is Consistently Applied.
- Memorandum of Understanding, "Interface Policy Between EH&S & Facilities: Project Support"

- PUB-3000, Chapter 6, Section 6.5, Subsection 6.5.2

7.5 Evaluating Operations, Procedures & Facilities

The ISMS Description and subordinate documents, including the Safety & Health Manual, emphasize how to conduct work at the work-activity level. In a research and development organization such as LBNL, the focus is on the identification of hazards associated with individual work activities, because these activities can change frequently and thus present different hazards.

At LBNL, hazard identification is accomplished:

- On a routine/ongoing basis,
- During regularly scheduled assessment activities, and
- As an integral component of the work authorization process

Examples of routine/ongoing hazard identification include daily or pre-use inspections of:

- Ladders
- Hand and power tools
- Condition of electrical equipment
- Manually handling load pre-lifts
- Hoist, crane and accessory equipment
- Elevating work platforms
- Extendable boom work platforms
- Forklifts
- Active construction projects
- Occupancies for fire safety

References:

- PUB-3000, Chapter 5, Section 5.6, Subsection 5.6.5, Sub subsection 5.6.5.6
- PUB-3000 Chapter 25
- PUB-3000, Chapter 8, Section 8.13
- Pub-3000, Chapter 27, Section 27.8, Subsection 27.8.1
- PUB-3000, Chapter 5, Section 5.2, Subsection 5.2.5, Sub subsection 5.6.5.4

- PUB-3000, Chapter 5, Section 5.2, Subsection 5.2.6, Sub subsection 5.2.6.3
- PUB-3000, Chapter 10, Section 10.4, Subsection 10.4.4
- PUB-3000, Chapter 12, Section 23, Subsection 23.4

Self-assessment programs are regularly scheduled hazard identification activities which establish a formal, internal process used to evaluate ES&H programs, policies, and processes. Self-assessment activities are also the mechanism used to institute continuous improvements to the Laboratory's ES&H programs. Examples of such regularly scheduled hazard identification activities include:

- Line Management Safety Walkaround Program
- Divisional Self-Assessments
- Management of Environment Safety and Health (MESH) reviews

References:

- EH&S Website, References, Safety Walk-Around Checklist For Managers
- Divisional ES&H Self-Assessment Performance Measures
- OCA, Assurance Systems, ES&H Assurance
- PUB-5344 ES&H Self Assessment Program
- PUB-3000, Chapter 1, Sections 1.4.5.2 & 1.4.5.3

Other regularly scheduled hazard identification activities include:

- Annual fire safety inspection
- Quarterly hoist, crane & accessory equipment inspection
- Idle crane pre-use inspection
- Nondestructive crack detection examination of crane or hoist hooks greater than 3 ton and all lifting fixtures with welds
- Annual running rope inspection
- Lifting device & fixture inspection & testing
- Annual LOTO program audit

References:

- PUB-3000, Chapter 1, Section 1.4.2
- PUB-3000, Chapter 28, Subsection 28.7
- PUB-3000, Chapter 28, Section 28.8

- PUB-3000, Chapter 27, Section 27.10, Subsection 27.10.2
- PUB-3000, Chapter 18, Section 18.20

At LBNL, work authorizations include Line Management, Formal, and Facility-Based Authorizations.

Line Management Authorizations require principal investigators, managers, and supervisors to identify work hazards and implement appropriate controls during the work planning process. For most work, the hazards and risks are known and typical, and precautions are routine. Line management authorizations are based on individual activities. Work leaders must assure that employees know how to perform the work safely and in conformance with applicable requirements, and must provide on-the-job training as needed

Reference:

- PUB-3000, Chapter 6, Section 6.2, Subsection 6.2.1

Certain work activities pose elevated hazards that require a Formal Authorization. Depending on the hazard, the principal investigator, supervisor, or manager must document the work and associated hazards, describe administrative and engineering controls to mitigate those hazards, and document training or certification for the participants in a written document or plan. Formal authorizations are based on individual activities. Experts with appropriate certifications or background from within EH&S and other divisions are brought into the process for consultation, review, and/or approval.

Reference:

- PUB-3000, Chapter 6, Section 6.3

Facility-based authorizations described in Safety Analysis Documents provide safety "operating envelopes" based on the hazards and controls of activities taking place within that facility. A facility-based authorization is a function of some additional aggregate hazard or interaction between multiple operations, or else is a function of some piece of facility equipment. Operating divisions within the affected facility are responsible for conducting work within the defined safety "operating envelope" specified by the authorization. Once a facility-based authorization is in place, hazards and controls are reviewed periodically to assure that the actual operations comply

with the operating envelope established for that facility. In addition, existing programs and facilities must be reviewed periodically to determine if changes in operations may trigger a new facility-based authorization. Review and development of controls from facility design and procedures development point of view is discussed in Section 8.1 below.

Reference:

- PUB-3000, Chapter 6, Section 6.4

7.6 Activity-Level Hazard Analysis

A Job Hazards Analysis (JHA) Program has been approved and is currently being implemented in phases. The first phase was a pilot in several divisions which was concluded with full implementation planned in FY 2008. The process below describes this JHA Program. It is used to identify tasks, hazards and controls associated with jobs at the activity level. The LBNL JHA Program consists of the following elements:

1. Every Worker must have a current Individual Baseline JHA, authorizing regular and routine Work that he/she performs. The authorized Individual Baseline JHA is obtained through the Individual Baseline JHA process described in PUB-3000, Chapter 32.
2. As necessary, every Worker must have one or more current Task-based JHA(s) to authorize additional, unpredictable, short-term or unusual Work that is not included on the Individual Baseline JHA. The authorized Task-based JHA can be obtained through:
   a. use of the Task-based JHA process described in PUB-3000, Chapter 32; or
   b. use of an equivalent Task-based JHA process as described in the Division ISM Plan, and approved by the EH&S Division Director.
3. Work may not be conducted unless the applicable JHA(s) exist, except as noted below:

   Exception: If a Worker does not have a JHA authorizing the Work, he/she may perform Work that has been analyzed for someone else, provided that he/she is supervised by that person and that person has been authorized to perform the described Work, and both adhere to the controls specified for that Work. Work that is authorized by a formal authorization as defined

in PUB-3000, Chapter 6, may be subject to different requirements regarding untrained work. In that case, the requirements of the Formal Authorization prevail.

4. A Worker must complete the Job Hazards Analysis within 30 days of initial appointment to LBNL, and review/update it at least annually from the date of Work Lead authorization, and as the job changes significantly. See PUB-3000, Chapter 24 for additional information.
5. The Job Hazards Analysis must include all Work that is more hazardous than that "Commonly Performed by the General Public."

The Job Hazards Analysis process consists of:

1. Identifying Workers for whom an Individual Baseline JHA will be completed;
2. Identifying the scope of the Work to which the JHA will apply;
3. Deciding whether a Task-based JHA is needed in addition to the Individual Baseline JHA, and identifying to which Workers it will apply;
4. Collecting Work-related data to enable identification of tasks, hazards and controls;
5. Holding a JHA Development Work Session between the Worker and Work Lead to discuss and validate the identified tasks, hazards and controls;
6. Capturing a final list of the tasks, hazards and control information in a standard format; and
7. Signing the JHA form by the Work Lead and Worker acknowledging concurrence on the tasks, hazards and controls; as well as authorizing the work to proceed.
   Reference:
   - PUB-3000, Chapter 32

7.7 Reviewing Safety and Health Experience

At LBNL, data and information regarding workplace accidents, injuries, and illnesses is collected by the EH&S Division and analyzed to identify worker protection problem areas. In addition, the Office of Contract Assurance (OCA) compiles the data and information from the year's self-assessment activities and summarizes results in the

LBNL Environment, Safety and Health Self-Assessment Report. OCA analyzes self-assessment results to identify repeat and related deficiencies. OCA analyzes discernible trends to determine if generic root causes exist. Analysis techniques may include:

- Establishing correlation between deficiencies and circumstances that cause them;
- Predicting outcomes based on observation, experience, or reason;
- Looking at indicative signs and/or symptoms;
- Estimating future possibilities of recurrence.

When generic root causes exist, OCA and EH&S Division will develop corrective actions and lessons learned, as appropriate. The corrective actions are entered into CATS and tracked in the same manner as any assessment finding. Because most of the corrective actions at this level are institutional in nature, the objective of these actions is to foster continuous improvement of LBNL's ES&H performance.

Such analysis and trending is used to identify the prevalent types of accidents, injuries, and illnesses and their sources and causes. Information derived from trend analysis is used to focus worker protection efforts on the actual sources of injuries and illnesses and to help prioritize hazard abatement activities. Components of accident, injury, and illness data collection and analysis include:

- Procedures to investigate, find root causes, and report occupational injuries and illnesses and near misses;
- Systems and methods to collect, record, compile, and manage accident, injury, and illness data and information, including but not limited to, the OSHA 300 log of occupational injuries and illnesses, workers' compensation data, accident reports, incident reports, industrial hygiene exposure monitoring results, inspection reports and Corrective Action Tracking System (CATS) entries;
- Methodologies to analyze data and information to identify and trend accidents, injuries, and illnesses by type and source; and
- Use of the Tap Root™ root cause analysis approach to analyze identified trends, to determine root causes, and to develop appropriate control measures.

References:

- PUB 5344, Section 10, Subsection 10.5
- EH&S Division Website, Accident Statistics
- PUB-3000, Chapter 5, Section 5.1

- PUB-3105, Identify Root Causes (pg 20)
- RPM, Section 8.01(3)(e)
- OQMP, Section 3, Performance Assessment and Improvement, Subpart 3.3.2 Continuous Improvement, Corrective Action
- PUB-3000, Chapter 14, Section 14.1
- PUB-3000, Chapter 15, Section 15.3, Subsection 15.3.6
- Manual For 10 CFR 851 Worker Safety & Health Program Noncompliance Screening & Reporting Process

7.8 Interactions Between Workplace and Other Hazards

For the purpose of this document, workplace hazards are defined as physical, chemical, biological, and safety hazards with any potential to cause illness, injury, or death to a person. In instances where the requirements for other hazards (such as radiological hazards) overlap or appear to conflict, the personnel responsible for implementing worker protection and radiation protection requirements will coordinate their efforts. In such cases, the two sets of requirements are integrated and applied in a manner that prevents undesirable results and provides reasonable assurance of adequate worker protection.

7.9 Closure Facility Hazards & Controls

A list of closure facility hazards and the established controls must be submitted to the Manager of the DOE-SC Berkeley Site Office within 90 days of identifying such hazards. This is accomplished by the Facilities Division, Planning, Design and Construction (PD&C) Department and is part of the on-going process they use to develop, operate, shut down and transfer facilities, operations and associated equipment in conformance with DOE Order 430.1B. Facility information required by this order is managed using the Facilities Information Management System (FIMS).

PD&C manages LBNL's portion of the FIMS database. All real property capital asset data pertaining to buildings, site utilities, roads, walks, paved areas, fences site preparation, grading, and landscaping is recorded. Information regarding closure facilities, and their associated hazards and controls, is communicated between PD&C and the DOE-SC Berkeley Site Office during their ongoing management of real property on a regular basis. Closure facilities are identified in the Institutional Plan, which is updated regularly. Specific plans for facility closure are exchanged in the

Unified Project Call Process described in Section 1.27 of the LBNL Regulations and Procedures Manual. A representative list of Closure Facilities is found as Appendix E.

Reference:

- RPM, Section 1.27

8 Hazard Control and Abatement

LBNL has implemented a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner. Abatement actions are prioritized and implemented according to the risk to workers. Interim protective measures are implemented as appropriate, pending final abatement. Identified workplace hazards, interim protective measures, and corrective action plans are documented and tracked to closure through the Corrective Action Tracking System (CATS).

Hazard controls are selected based on the following hierarchy:

- Elimination or substitution of the hazards where feasible and appropriate;
- Use of engineering controls where feasible and appropriate;
- Application of work practices and administrative controls that limit worker exposures; and
- Provision and use of personal protective equipment

No work will be conducted at LBNL where there are recognized hazards until controls tailored to the work being performed are in place. Before each new project or significant change to any process (including introduction of new equipment) or work activity (including research) is commenced, the new project or change must be evaluated in conformance with the safe work authorization requirements of PUB-3000, Chapter 6. The objective is to ensure that hazard controls enhance and further the nature of research and all other work activities, and not impede it. The Safety Analysis Document process is addressed in section 7.5 above.

References:

- PUB-3000, Chapter 1, Section 1.3.7
- PUB-3000, Chapter 6, Section 6.2.1
- PUB-3000, Chapter 6, Section 6.3.1
- PUB-3000, Chapter 6, Section 6.4.1

Safe Work Authorization is a review and management approval process designed to ensure that procedures, controls, and resources are in place before the work begins. All work at LBNL proceeds under authorization. Work authorization classifications include the following:

- Line Management: An authorization implied from other documentation, or explicit but administered by the responsible division doing the work.
- Formal: A written document, concurrently authorized by the responsible division and by the EH&S Division, that describes the scope of work, required procedures and controls, authorized materials and equipment to be used, and staff authorized to conduct the work.
- Facility-Based: Hazard analysis and controls are based on the facility as a whole rather than on an individual operation.

References:

- PUB-3000, Chapter 6, Section 6.1
- OQMP, Subsection 2.2.3, Formal Work Authorization

8.1 Development of Controls From Facility Design & Procedures Development

Facility designs developed by engineering professionals are reviewed by other members of the project team. Safety and health professionals review designs for compliance with safety & health requirements. The number and rigor of design reviews vary depending on project size and complexity. Large construction projects have a design review at the conceptual design stage, preliminary design stage, final design stage, and construction stage.

Hazards that are identified in the design phase of new facilities and facility modifications or during the development or modification of procedures are eliminated or controlled through design or procedure changes. The controls implemented are commensurate with the risk level identified in the review process. Where hazards cannot be controlled through design changes, procedural or administrative controls or the use of personal protective equipment is considered.

References:

- ISMS Management Plan, Section 6.3.1.2, The Graded Approach Process Is Consistently Applied.
- Memorandum of Understanding, “Interface Policy Between EH&S & Facilities: Project Support”

- PUB-3000, Chapter 6, Section 6.5, Subsection 6.5.2

8.2 Managing Identified Safety & Health Noncompliances

Identified safety and health noncompliant conditions, including *de minimis* type violations, are managed through the Corrective Action Tracking System (CATS) which provides a standardized method of tracking issues and deficiencies, documenting assessments, and prioritizing and tracking interim measures and final abatement actions.

A risk-assessment methodology, based on potential incident severity and probability of occurrence, is used to assess the relative risk of safety & health noncompliances tracked in CATS. The risk prioritization system uses a graded approach, which at higher levels protects workers from dangerous safety and health conditions by stopping work until corrective actions are applied.

Reference:

- OQMP, Appendix A, The Graded Approach Methodology at LBNL
- PUB-5344, Section 10

8.3 Purchasing Equipment, Products, and Services

The purchase of goods and services at LBNL is managed through the Berkeley Lab Procurement Department, using the PeopleSoft/Oracle Financial Management System (FMS). The procurement of hazardous, controlled, and special materials (those products that pose unusual hazards, or present unusual problems in acquisition, handling, transportation, or internal control) is controlled through eProcurement (ePro) and it's subset eBuy, which specifically identify high hazard items (Restricted Items List – Special Treatment Items) for special EH&S review. These systems automatically route requisitions for these items to EH&S for review and approval before the requisition reaches Procurement.

Reference:

Berkeley Lab Procurement, Order Wizard, Proc Users' Guide, Hazardous Materials

Berkeley Lab Procurement, eBuy, eBuy FAQ (Question 9: "Can restricted items be purchased through eBuy")

Additionally, “General Provision Contracts”, “Facilities Division Standard Project Specifications”, and PUB-3000, Chapter 10 are used to convey EH&S requirements to subcontractors who provide construction, equipment installation, and industrial services (e.g., repair, calibration, testing, road paving, and tree removal).

References:

- Berkeley Lab Procurement, Forms Menu, General Provisions
- Facilities Division, Design & Construction, Standard Project Specifications, Division 1, Section 01020
- PUB-3000, Chapter 10, Sections 10.1 through 10.17

Prior to proceeding with any service contractor or vendor work activity, the LBNL contact person (Manager, Supervisor, Work Lead) and service contractor or vendor are responsible for identifying hazards and implementing controls.

Reference:

- PUB-3000, Chapter 1, Section 1.3, Subsection 1.3.2, Sub subsection 1.3.2.5

9 Safety and Health Standards

The Rule requires LBNL to comply with a defined set of safety and health standards that LBNL has evaluated to be applicable to LBNL workplaces. The standards are:

- 10 CFR 850, “Chronic Beryllium Disease Prevention Program”
- 29 CFR 1904.4 through 1904.11, 1904.29 through 1904.33; 1904.44; and 1904.46, “Recording and Reporting Occupational Injuries and Illnesses”
- 29 CFR 1910, “Occupational Safety and Health Standards”, excluding 29 CFR 1910.1096 “Ionizing Radiation”
- 29 CFR 1926, “Safety and Health Regulations for Construction”
- American Conference of Governmental Industrial Hygienists (ACGIH), “Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices”, (2005)
- ANSI Z88.2, “American National Standard for Respiratory Protection”, (1992)
- ANSI Z136.1, “Safe Use of Lasers”, (2000)

- American National Standards Institute (ANSI) Z49.1, “Safety in Welding, Cutting and Allied Processes”, sections 4.3 and E4.3, (1999)
- National Fire Protection Association (NFPA) 70, “National Electrical Code”, (2005)
- NFPA 70E, “Standard for Electrical Safety in the Workplace”, (2004)
- American Society of Mechanical Engineers (ASME) Boilers and Pressure Vessel Code, section I through XII including applicable Code Cases, (2004)
- ASME B31 (ASME Code for Pressure Piping), sections as required by 851.27(b)(8)(i) through (x)
- DOE Manual 231.1-1A, “Environment, Safety and Health Reporting Manual, September 9, 2004

LBNL formally adopts ES&H standards into the contract between the Regents of the University of California and the U.S. department of Energy (Contract 31) through the process described in the Integrated Safety Management System (ISMS) Plan. The standards required by the Rule, but not currently adopted into the WSS set, will be formally adopted into the WSS set through the revision process described in the ISMS.

References:

- ISMS Management Plan, Appendix C, LBNL Work Smart Standards Change Management Process

10 Training

The LBNL EH&S Training Program is a collaborative endeavor of the EH&S Division and line management. Line management provides On the Job Training (OJT); training specific to the work conducted in its actual environment, and ensures that training requirements are met. The EH&S Division, through the EH&S Training Program, provides training courses designed to meet regulatory, Laboratory requirements, and applicable best practices.

It is LBNL policy, and the federal law requires, that all staff, participating guests, visitors, and others who perform work at, or for, LBNL receive appropriate training necessary to protect their health and perform work in a safe and environmentally

sound manner. This training must include information regarding job hazards, possible health effects, and required work practices and procedures.

Reference:

- PUB-3000, Chapter 24, Section 24.1

All new employees, guests, students, visitors, and contractors must receive basic EH&S orientation information prior to commencing work at LBNL. This information may include General Employee Radiological Training at Berkeley Lab (PUB-3152); Integrated Safety Management for Employees, Contractors, Participating Guests, and Visitors; Environment, Health, and Safety Handbook for Subcontractors and Visitors (PUB-708); and, in some cases, being familiar with division-specific material. Formal authorizations require workers to be trained prior to the start of work.

The following table outlines the EH&S training requirements for all employees, guests, students, contractors/subcontractors, and visitors.

Employees, Guests, Students, Contractors with appointments of more than 30 calendar days	Complete EHS0405 [General Employee Radiation Training (GERT)] Complete Job Hazard Analysis within first 30 days of appointment. Identify division-specific requirements or additional training requirements as prescribed by the individual's supervisor. Attend EHS0010 (Introduction to ES&H at the Lab) within first 30 days of appointment. Complete On-the-Job Training as identified by the supervisor. Complete all required training with 90 calendar days (for assignments extending beyond three months). Update the Job Hazard Analysis annually and whenever the scope of work should change, and complete all newly identified EH&S Training within 90 calendar days.
Employees, Guests, Students, Contractors with appointments of 30 calendar days or less	Complete EHS0405 [General Employee Radiation Training (GERT)]. Complete On-the-Job Training. Complete User Facility or other specialized training program as prescribed by the hosting division or Laboratory Program (for

	example, ALS, MSD, TMF, CSEE, Facilities Training Program).
Occasional Guests, Students, Contractors	Complete EHS0405 [General Employee Radiation Training (GERT)], unless escorted at all times on Laboratory property. Complete On-the-Job Training or workplace orientation as provided by the LBNL host. Must work under line-of-sight supervision where training is not complete.

Reference:

- PUB-3000, Chapter 24, Section 24.4

The objectives of the LBNL EH&S Training Program are:

- To develop an EH&S training curriculum that addresses pertinent regulatory requirements, Lab policy, and best practices.
- To assist line managers, instructors, and subject matter experts in the development of course objectives, instructional strategies, and evaluation of EH&S training programs.
- To consult and assist Divisions and Line Management with the development and evaluation of division specific EH&S Training programs and new EH&S courses.
- To assist line management in the identification and completion of all required and recommended environment, health, and safety training.
- To provide high quality EH&S training courses that provide the necessary knowledge and awareness for LBNL employees, guests, and visitors to operate in a safe and environmentally protective manner in the execution of their work activities.
- To develop EH&S training instructor competencies.
- To establish and implement EH&S training procedures and policies.
- To provide mechanisms to ensure that such training is completed
- To assist line management in development of on the job training (OJT) programs that result in direct skill transference to the job
- To provide appropriate document systems to record all EH&S training.

- To ensure that training-related records and reports are accessible for use by laboratory senior management and cognizant line management.
- To ensure continuous program improvement of all aspects of the EH&S Training Program.

Reference:

- PUB-3000, Chapter 24, Section 24.2

Supervisors are responsible for identifying EH&S training requirements and other training needs specific to the job responsibilities, operations, and hazards to which their personnel may be exposed. In addition, supervisors are responsible for providing job and hazard-specific training for new personnel as well as for all personnel whenever procedural changes or system modifications have an impact on safety, and for maintaining written documentation of all such training.

Reference:

- PUB-3000, Chapter 24.8.2

Employees, participating guests, and visitors are responsible for completing pertinent ES&H training requirements based on the hazards, operations, and equipment expected to be encountered, and for applying information obtained from training opportunities to promote safe working conditions.

Reference:

- PUB-3000, Chapter 24.8.1

The LBNL EH&S Training Database (JHQ) maintains information on course completions for individual workers, training requirements for individual workers, and aggregate reports by supervisor or LBNL organization.

The EH&S Training Program maintains all pertinent program documentation, including course specific materials, and reference information.

Reference:

- PUB-3000, Chapter 24.8.5

11 Recordkeeping and Reporting

LBNL is responsible for establishing and maintaining recordkeeping and reporting processes for data related to health and safety including:

- Hazard inventories, assessments, and abatement
- Exposure measurements and controls
- Injuries and illnesses
- Safety and health deficiencies

It is specifically prohibited to conceal or destroy information concerning noncompliance or potential noncompliance with the requirements of this Plan or the Rule.

LBNL uses a variety of methods of track safety and health data. For example, the Ergonomics Database tracks Ergo Evaluations across the laboratory. It provides the ability to send e-mail to interested parties when an ergonomic evaluation is done. Chemical exposure measurements and assessments are maintained in the industrial hygiene database (CTS) available through the IH Group. Material Safety Data Sheets (MSDS) are maintained in an electronic format to facilitate site-wide access. These databases may be password protected to manage appropriate access.

References:

- Comprehensive Tracking System (CTS, password protected)
- Chemical Management System (CMS)
- Ergonomics Database

Injuries and illnesses at LBNL are tracked by the EH&S Division. This information is reported to DOE in accordance with DOE Manual 231.1-1A and DOE Manual 231.1-2.

Reference:

- PUB-3000, Chapter 5, Section 5.1.1

Contractors, subcontractors, and visitors are required to provide copies of reports for all OSHA-recordable injury and illness cases occurring on site to the Laboratory. Laboratory employees and contract workers are required to report all injuries and

occupational illness cases to Health Services. LBNL reporting requirements are in addition to, and do not replace, subcontractor employer reporting, recordkeeping, and other obligations under OSHA regulations.

References:

- PUB-3000, Chapter 3, Section 3.15
- PUB-3000, Chapter 3, Section 3.22, Subsection 3.22.9
- PUB-3000, Chapter 5, Section 5.1, Subsection 5.1.1, Sub subsection 5.1.1.4

The Office of Contract Assurance (OCA) is responsible for:

- Tracking institutional corrective action plans for deficiencies and hazards related to health and safety
- Analyzing and reporting institutional health and safety data

OCA is also responsible for managing the process for occurrence reporting and incident analysis. This reporting is used to categorize, report, and process information about events or conditions related to Laboratory-controlled or managed buildings, experiments, or other activities in support of Laboratory operations that meet the site-specific reportable occurrence criteria in the DOE Occurrence Reporting and Processing System (ORPS).

Reference:

- OCA Website
- PUB-3000, Chapter 15, Section 15.2, Subsection 15.2.3

LBNL established the Corrective Action Tracking System (CATS) to track, prioritize, and assess deficiencies and associated hazard abatement and corrective actions at the institutional and divisional levels. The CATS database tracks safety and health issues and deficiencies through to closure. OCA is responsible for analyzing issues and deficiencies from an institutional standpoint to identify trends and issues.

Reference:

- OCA Website

The EH&S Division is responsible for recordkeeping, analysis, and reporting 10 CFR 851 safety and health noncompliances using the DOE Noncompliance Tracking System (NTS). DOE's Office of Price-Anderson Enforcement has established NTS reporting thresholds. Noncompliances reported into NTS must have a direct or immediate relationship to worker safety and health and cite specific standards from 10 CFR 851. NTS reporting thresholds are listed in Table 1. The Occupational Safety Group screens CATS entries and ORPS reports to determine if they are reportable under the DOE-NTS criteria.

Reference:

- LBNL Manual for 10CFR851 Worker Safety & Health Program Noncompliance Screening & Reporting Process, Revision 1, April 17, 2007.

Table 1. DOE Noncompliance Tracking System (NTS) reporting thresholds for 10 CFR 851.

Management issues noncompliances[1]	• Repetitive noncompliances • Programmatic issue • Intentional violation or misrepresentation
Noncompliances associated with occurrences (DOE Manual 231.2)	
ORPS[2]-related event	Description[3]
Events that result in occupational injuries/illnesses	1. Fatality/terminal illness (SC 1)[4] 2. Inpatient hospitalization of > 3 personnel (SC 1) 3. > 3 personnel having DART cases (SC 2) 4. Personnel exposure > limits requiring medical treatment (SC 2) 5. Personnel exposure > limits (SC 3) 6. Serious occupational injury (SC 3)
Fires/explosions	1. Unplanned fire or related event (e.g., arc flash)/explosion within primary confinement/containment boundaries (SC 1) 2. Unplanned fire/explosion in a nuclear facility that activates a fire suppression system (SC 2) 3. Unplanned fire/explosion in a non-nuclear facility (SC 3)
Failure of hazardous energy controls	1. Process failure resulting in burn, shock (SC 2) 2. Process failure/discovery of uncontrolled energy source (SC 3)
Near miss	ORPS Group 10 (SC 1-4)
Other significant conditions[5]	Conditions meeting the criteria of Severity Level I (serious) violations > low relative risk[6]

1. Refer to Operational Procedures (June 1998) document titled "Identifying, Reporting and Tracking Nuclear Safety Noncompliances" for a description of noncompliances in the category of "Management Issues."
2. Occurrence Reporting and Processing System.

3. The description following each category of ORPS-related event is a brief characterization of the related criteria. Use the full explanation of the criteria contained in DOE Manual 231.1-2, Occurrence Reporting and Processing of Operations Information, to establish NTS reportability of event-related worker safety and health noncompliances.
4. For an explanation of Significance Categories (SC), refer to DOE M 231.1-2.
5. Conditions of noncompliance identified by any method or means (e.g., Contractor Assessments, Internal Review Processes, External Assessments, Employee Concerns) that would not be reported into NTS as either a management issue or occurrence.
6. Contractors should use a risk-assessment methodology based on severity and probability of occurrence to assess the relative risk of conditions in the workplace. Conditions in this category with an associated low relative risk should not be reported. Note that a number of low risk and/or Severity Level II (Other-than-Serious) conditions may point to the existence of a serious condition and/or conditions with underlying programmatic issues.

Identification of trends and development of appropriate hazard abatement is achieved through the analysis of self-assessments, external reviews, event-based occurrences and incidents, and other data.

Additionally, to promote the identification and communication of good practices and lessons learned, LBNL uses safety and health data to create appropriate and useful Lessons Learned. OCA is responsible for maintaining the Lessons Learned Program as required in DOE Order 210.1.

References:

- OCA Website

12 Variances, Equivalencies and Alternate Means of Compliance

12.1 Variances

A variance from a 10 CFR 851 requirement may be granted only by the Under Secretary, after receiving the recommendation of the DOE Assistant Secretary for Environmental, Safety, and Health. The procedure for obtaining such a variance is described in Subpart D of the Rule, implemented at LBNL through PUB-3000, Chapter 1, Section 1.7. Variance requests will be prepared with the assistance and support of the DOE- Berkeley Site Office.

As of May 2008, the following “variances” are on record at LBNL as listed in Table 2. They have been variously termed variances, exemptions, or equivalencies at the time they were written. For purposes of compliance with the Rule, these previously addressed and resolved non-compliant conditions are equivalencies granted under the appropriate AHJ at their time of issue.

Table 2. Existing Equivalencies

Date	Subject	Bldg/Program	Issued by
3/90	Lack of rated separation within Building 6 is addressed through the use of a Highly Sensitive Smoke Detection System, which provides equivalent protection.	Building 6 - Advanced Light Source	DOE LBL Site Mgr
6/95	Exiting from Auditorium 66 may not conform to standards. This 2nd floor 140 person capacity space has two exit doors exiting to a common hallway which is divided by a fire door equipped with an automatic closure device. There are two separate pathways to exit the building, providing equivalent exiting capacity.	B66 - Material Science Division	

References:

- PUB-3000, Chapter 1, Section 1.7

12.2 Equivalencies and AHJ Authority

Another method for resolving noncompliance conditions used at LBNL is to develop equivalencies to NFPA and ANSI standards. Equivalency decisions are made by the various designated Authorities Having Jurisdiction (AHJ) for their subject areas based upon the input of their qualified advisors. They are a legal mechanism for approving substitute or alternate control measures when the primary ones are not feasible or practical. For LBNL, the Manager of the DOE Berkeley Site Office is the ultimate AHJ, and grants authority to the Laboratory Director to make equivalency decisions. The LBNL Director delegates the AHJ responsibility through the Laboratory's Associate Director of Operations and Division Directors to the appropriate LBNL technical Subject Matter Expert (SME). DOE ES&H technical staff participates in the equivalency development process depending upon the complexity of the issue using a graded approach.

Equivalency evaluations and decisions are usually made by SMEs when a workplace condition or practice is technically complicated and the applicable worker safety & health standards and/or regulations are also complicated, conflicting or vague. The results of equivalency evaluations and decisions fall into two broad groups: 1) descriptions of how conditions fall within the bounds of a complicated control standard; and 2) descriptions of substitute or alternate controls measures, different from those required by a standard, are necessary when the primary ones are not

feasible or practical. The first group of evaluations and decisions is in compliance with standards and requires no further approval. It is discussed in section 12.3, below. The second group is technically out of compliance with standards until an AHJ has granted a written approval. The legal authority to grant the equivalency flows back from the SME (who has been granted AHJ authority) through the Laboratory Director to the DOE-BSO Site Manager as allowed by the Rule. The Rule allows AHJ authority to be delegated for Electrical Safety and Fire & Life Safety through the NFPA standards process and for Laser Safety through the ANSI process.

The DOE-BSO Site Manger has delegated AHJ authority for the Electrical Safety Program to the LBNL Laboratory Director. The Laboratory Director has, in turn, delegated electrical safety AHJ authority and divided it, depending upon the subject matter area, between the LBNL Facilities Division Director, the Engineering Division Director, or the ES&H Division Director as described in PUB-3000, Chapter 8, Section 8.9. AHJ authority for Fire and Life Safety and for Laser Safety has been retained by the DOE-BSO Site Manager.

References:

- Berkeley Site Office Manager letter, Subject: Authority Having Jurisdiction (AHJ), dated June 29, 2007.
- DOE G 440.1-8 dated 12-27-06, Implementation Guide for use with 10 CRF Part 851 Worker Safety and Health Program, Section 3.3.4.1 Authority Having Jurisdiction (AHJ) and Equivalencies
- PUB-3000, Chapter 8, Section 8.9

12.3 Alternate means of compliance

The interpretation of safety and health standards and their application in a research and development environment is often complicated. The ES&H Division Director is the final LBNL decision maker regarding whether a condition is compliant with safety & health requirements, or not. This decision making responsibility has historically been called an AHJ authority, but it is recognized as being distinct from the legal authority to allow a non-compliant alternate means of compliance described in section 12.2 above.

As specified in PUB-3000, Chapter 1, Section 1.3.2.3, the ES&H Division Director serves as the Fire and Life Safety Code AHJ who is responsible for ensuring compliance with fire and life safety requirements found in 29 CFR 1910, Subparts E and L; 29 CFR 1926, Subpart F; and applicable NFPA standards. DOE-BSO retains

authority to grant equivalencies, exemptions, or variances for fire and life safety. Input for fire and life safety interpretations is provided by the Fire Prevention SME as indicated in PUB-3000, Chapter 12. Laser Safety interpretations are made in a similar manner with input by the Laser Safety SME as indicated in PUB-3000, Chapter 16.

Another method to resolve negligible hazard non-compliant conditions is to recognize them as being a de minimis condition, a technical violation that has negligible effect on worker safety & health. Such de minimis deficiencies will be documented in the LBNL Corrective Action Tracking System (CATS).

References:

- PUB-3000, Chapter 1, Section 1.3.2.3
- PUB-3000, Chapter 12
- PUB-3000, Chapter 16

13 Enforcement

The Rule authorizes the Secretary of Energy to issue citations and civil monetary penalties to contractors indemnified by the Price-Anderson Amendments Act, such as LBNL, for violations of DOE worker safety and health requirements. The Secretary's enforcement authority is implemented through the Office of Price-Anderson Enforcement.

The DOE Worker Safety and Health Enforcement Program relies on contractors to voluntarily identify and report 10 CFR 851 noncompliances, thereby allowing DOE to regulate its operations without the expense and intrusiveness of an inspection-based system, such as that used by the Nuclear Regulatory Commission to regulate commercial nuclear power plants.

Procedures for implementing the enforcement process are found in Subpart E of the Rule. The enforcement process is shown in Appendix G.

Appendix A Glossary

ACGIH American Conference of Governmental Industrial Hygienists

Affected worker* A worker who would be affected by the granting or denial of a variance, or any authorized representative of the worker, such as a collective bargaining agent.

AHJ Authority Having Jurisdiction

ANSI American National Standards Institute

ASME American Society of Mechanical Engineers

BSO Berkeley Site Office

Casual Visitor A casual visitor is an individual visiting the Laboratory for a week or less who is not engaged in Laboratory research or use of Laboratory facilities. Casual visitor status may be extended to two weeks by application to the Site Access Administrator. This category of visitor includes, but is not limited to, those giving or attending seminars, those visiting the Laboratory for limited scientific discussions or as nonparticipants solely to observe research in progress, radiotherapy patients, job seekers, tour groups, employee family/friends, retired employees with occasional reason to visit the site, and the press. [See also definitions for contractor, employee, worker, and participating guest.]

CATS Corrective Action Tracking System

CFR Code of Federal Regulations

Closure facility* A facility that is non-operational and is, or is expected to be, permanently closed and/or demolished, or title to which is expected to be transferred to another entity for reuse.

Closure facility hazard* Refers only to facility-related conditions within a closure facility involving deviations from the technical requirements of 851.23 of the Rule that would require costly and extensive structural and engineering modifications to be in compliance. Closure facilities may have other hazards as well.

Contract 31 DOE/University of California (UC)/LBNL Prime Contract 31 (Contract No. DE-AC02-05CH11231)

Contractor* Any entity, including affiliated entities, such as a parent corporation, under contract with DOE, including a subcontractor at any tier, with responsibility for performing work at a DOE site in furtherance of a DOE mission. As stated in the Rule, all contractors and subcontractors at any tier are covered under this definition. The definition does not, however, apply to contractors or subcontractors that provide only “commercial items” as defined under the Federal Acquisition Regulations (FAR). Such contractors would not be performing work in furtherance of a DOE mission. [See also definitions for employee, worker, participating guest and casual visitor.]

* As defined in 10 CFR 851

Covered workplace* A place at a DOE site where a contractor is responsible for performing work in furtherance of a DOE mission.

CVC California Vehicle Code

DOE* The United States Department of Energy, including the National Nuclear Security Administration

DOE site* A DOE owned or leased area or location or other area or location controlled by DOE where activities and operations are performed at one or more facilities or places by a contractor in furtherance of a DOE mission. This definition includes all sites where DOE exercises regulatory control under the Atomic Energy Act (AEA), even if DOE does not own or lease the site.

EAP Employee Assistance Program

Employee A person hired by the University of California to work at LBNL. This includes exempt and nonexempt employees, but not participating guests or casual visitors. [See also definitions for contractor, worker, participating guest and casual visitor.]

ESN Engineering Safety Note

ES&H Environment, Safety, and Health. References to ES&H in this document are limited to the protection of workers from workplace safety and health hazards. Environmental management is outside the scope of the Program.

Facility Management Includes individuals who have responsibility for maintaining the safety envelope for facilities.

IARC International Agency for Research on Cancer

Incorporate by reference Only the referenced document is incorporated by reference; references cited in the incorporated document are not included.

ISM Integrated Safety Management

ISMS Integrated Safety Management System

ISMS Plan LBNL *Integrated Safety Management System Plan LBNL/PUB-3140*

LBNL Lawrence Berkeley National Laboratory

LOTO Lockout/Tagout

NBIC National Board Inspection Code

NFPA National Fire Protection Association

NIOSH National Institute for Occupational Safety and Health

NRTL Nationally Recognized Testing Laboratory

NTP National Toxicology Program

NTS DOE Noncompliance Tracking System

OCA Office of Contract Assurance

OQMP Operating and Qualiity Management Plan

ORPS Occurrence Reporting and Processing System

OSHA Occupational Safety and Health Administration

PAAA Price-Anderson Amendments Act

Participating Guest A non-Laboratory employee who is engaged in Laboratory activities on site, and who falls into one or more of the following categories [See also definitions for contractor, worker, employee, and casual visitor]:

- **Users** Individuals visiting the Laboratory to use Laboratory User Facilities, defined as "Designated User Facilities" or "Other User Resources" by the Office of Energy Research at DOE.
- **National Energy Research Scientific Computing Center (NERSC) Users** Individuals using NERSC facilities either remotely or while visiting the Laboratory.
- **Scientific Collaborators** Individuals visiting the Laboratory who are engaged in Laboratory-approved research, testing, or analysis either through "hands-on" activities or through collaborative discussions with Laboratory employees. Included in this category are faculty and graduate students from other University of California facilities and other educational institutions, fellowship students, postdoctoral fellows, research fellows, and other professionals having adequate training and experience and meeting high professional standards in their fields.
- **Student Guests** Individuals who are graduate students under the direct supervision of a division to which the student is attached.
- **Nonscientific** Individuals who have been assigned to the Laboratory as their place of work either as employees of temporary employment services/agencies or as contract labor employees.
- **Consultants** Individuals who have entered into a consultant agreement with the Laboratory under the terms of RPM Section 2.24 (Consultants to Lawrence Berkeley National Laboratory).

PUB-3000 The LBNL Safety & Health Manual

RPM Regulations and Procedures Manual

Safety & Health Manual PUB-3000

Safety and health standard A standard that addresses a workplace hazard by establishing limits, requiring conditions, or prescribing the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe and healthful workplaces.

SME Subject Matter Expert

UCB University of California Berkeley

Worker* An employee of a DOE contractor who performs work in furtherance of a DOE mission at a covered workplace. [See also definitions for contractor, employee, participating guest and casual visitor.]

Work Lead A Work Lead is anyone who directs, trains, and/or oversees the work and activities of one or more workers. Work Leads provide instruction on working safely and the precautions necessary to use equipment and facilities safely and effectively. Work Leads need not be Line Managers, HEERA-designated Supervisors, or LBNL Employees.

Workplace hazard* Physical, chemical, biological, or safety hazard with any potential to cause illness, injury, or death to a person.

WSS Work Smart Standard

* As defined in 10 CFR 851

Appendix B
LBNL Offsite, Leased Facilities

LBNL Bld. #	Common Name	Address	Use	Tenant/User Group
1	Donner Laboratory	U. C. Berkeley Campus	Research Lab Admin	Physical Biosciences & Life Sciences
100 & 400	JGI/PGF Facility Offices & Labs	2800 Mitchell Drive Buildings 100 & 400 Walnut Creek, CA. 94598	Commercial Lab & Admin.	Production Genomics Facility (PGF) of the Joint Genome Institute (JGI)
100 & 400	JGI/PGF Facility Offices & Labs	2800 Mitchell Drive Buildings 100 & 400 Walnut Creek, CA. 94598	Commercial Lab & Admin.	Production Genomics Facility (PGF) of the Joint Genome Institute (JGI)
310	JGI/PGF Facility Offices & Labs	2800 Mitchell Drive Building 310 Walnut Creek, CA. 94598	Commercial Lab & Admin.	Production Genomics Facility (PGF) of the Joint Genome Institute (JGI)
500	JGI/PGF Facility Warehouse	2800 Mitchell Drive Building 500 Walnut Creek, CA. 94598	Commercial Warehouse	Production Genomics Facility (PGF) of the Joint Genome Institute (JGI)
904	Warehouse	380 Carlson Boulevard Richmond, CA 94804	Commercial Warehouse	Warehouse space for multiple users through out Lab, receiving, shipping
913	Mesocosm Greenhouse	4677 Meade Street Richmond, CA 94804	Greenhouse Office & Lab	Earth Sciences Division
933	Berkeleyan ALS Apartments	1910 Oxford Street Berkeley, CA 94720	Apartments	Visiting Guests of LBNL, ALS is the primary tenant
937	Berkeley Tower	2120 University Ave. Berkeley, CA. 94704	Commercial Admin.	OCFO (Budget, Controller - Accounting, Procurement, Travel, and HR), - Information Technology - Internal Audit - Work Force Diversity
943	Oakland Scientific Facility (OSF) National Energy Research Scientific Computing Center (NERSC)	415 20th Street Oakland, CA. 94612	Commercial Lab Admin Super Computing	Under two separate leases -1st and 2nd floors are used by NERSC/LBL -3rd and 4th floors are used by UCOP as office space (LBNL does not pay for or rent this space, it is solely UCOP space)
962	Washington DC L'Enfant Plaza Offices	370 L'Enfant Promenade Bldg. Aerospace Center 901 D Street, SW Washington DC 20447	Offices	Environmental Energy Technologies Division: Washington, DC Projects Office.
965	Network Operations Center at Livermore	2600 Kitty Hawk Road Suite 116 Livermore, CA. 94551	Commercial Admin.	Computational Research Division - ESNet (Energy Science Network)

	KittyHawk			
977	Joint LBNL/UCB Bioscience Research Center	717 Potter Street Berkeley, CA. 94710	Commercial Lab Admin Office	Genomes to Life (LBNL) Berkeley Structural Genomics Center "BRIDGE"- Biotechnology Resource for Interdisciplinary Discovery and Genome Engineering (LBNL, UCB, UCSF, private industry) Synthetic Biology (UCB)
978	JBEI (Joint BioEnergy Institute)	5885 Hollis Street Emeryville, CA 94608	Commercial Lab & Admin.	The Joint BioEnergy Institute, or JBEI, is a scientific partnership led by Lawrence Berkeley National Laboratory (Berkeley Lab) and includes the Sandia National Laboratories (Sandia), the Lawrence Livermore National Laboratory (LLNL), the University of California (UC) campuses of Berkeley and Davis, and the Carnegie Institution for Science, located at Stanford University and other such institutions as may be included from time to time.

* Master list obtained from the LBNL Facilities Division Planning Organization

Appendix C
List of Memoranda of Understanding and Agreements

1. March 15, 2004 Partnership Agreement Between UCB and LBNL Concerning Environment, Health and Safety Policy and Procedures

2. November 7, 2006 JGI Memorandum of Understanding (Regarding ES&H)

3. November 9, 2007 Joint BioEnergy Institute Environment, Safety & Health (ES&H) Responsibilities Matrix

Appendix D
10 CFR 851 Implementation Matrix

851 Section	851 Text	Corresponding LBNL WSHP Section
851.1 (a)	The worker safety and health requirements in this part govern the conduct of contractor activities at DOE sites.	Executive Summary 1.2 Locations
851.1 (b)(1)	This part establishes the: Requirements for a worker safety and health program that reduces or prevents occupational injuries, illnesses, and accidental losses by providing DOE contractors and their workers with safe and healthful workplaces at DOE sites; and	1.4 Purpose
851.1 (b)(2)	Procedures for investigating whether a violation of a requirement of this part has occurred, for determining the nature and extent of any such violation, and for imposing an appropriate remedy.	13 Enforcement
851.2 (a)(1)	This part does not apply to work at a DOE site: (1) Regulated by the Occupational Safety and Health Administration; or	1.8 Exclusions
851.2 (a)(2)	Operated under the authority of the Director, Naval Nuclear Propulsion, pursuant to Executive Order 12344, as set forth in Public Law 98-525, 42 U.S.C. 7158 *note*.	1.8 Exclusions
851.2 (b)	This part does not apply to radiological hazards or nuclear explosives operations to the extent regulated by 10 CFR Parts 20, 820, 830 or 835.	1.8 Exclusions
851.2 (c)	This part does not apply to transportation to or from a DOE site.	1.8 Exclusions
851.10 (a)(1)	With respect to a covered workplace for which a contractor is responsible, the contractor must: Provide a place of employment that is free from recognized hazards that are causing or have the potential to cause death or serious physical harm to workers; and	LBNL WSHP
851.10 (a)(2)(i)&(ii)	Ensure work is performed in accordance with: (i) All applicable requirements of this part; and (ii) With the worker safety and health program for that workplace.	LBNL WSHP
851.10 (b)(1)	The written worker safety and health program must describe how the contractor complies with the: Requirements set forth in Subpart C of this part that are applicable to the hazards associated with the contractor's scope of work	LBNL WSHP
851.10 (b)(2)	Section 850.10(b)(2) specifies that the written program must comply with any compliance order issued by the Secretary pursuant to section 851.4.	2.3 Responding to DOE Compliance orders
851.11 (a)	Preparation and submission of worker safety and health program. By February 26, 2007, contractors must submit to the appropriate Head of DOE Field Element for approval a written worker safety and health program that provides the methods for implementing the requirements of Subpart C of this part.	1.9 DOE-SC Berkeley Site Office Manager 1.10 DOE Approval
851.11	If a contractor is responsible for more than one covered workplace at a DOE site, the contractor must establish and maintain a single worker safety and health program for	1.2 Locations

(a)(1)	the covered workplaces for which the contractor is responsible.	
851.11 (a)(2)(i)&(ii)	If more than one contractor is responsible for covered workplaces, each contractor must: (i) Establish and maintain a worker safety and health program for the workplaces for which the contractor is responsible; and (ii) Coordinate with the other contractors responsible for work at the covered workplaces to ensure that there are clear roles, responsibilities and procedures to ensure the safety and health of workers at multi-contractor workplaces.	1.5 Scope 1.6 Flow Down of 851 Requirements To Subcontractors
		1.1 Work Activities
		1.3 Workforce
		1.4 Purpose
851.11 (a)(3)(i)&(ii)	The worker safety and health program must describe how the contractor will: (i) Comply with the requirements set forth in Subpart C of this part that are applicable to the covered workplace, including the methods for implementing those requirements; and (ii) Integrate the requirements set forth in Subpart C of this part that are applicable to a covered workplace with other related site-specific worker protection activities and with the integrated safety management system.	LBNL WSHP
851.11 (b)(1)&(2)	DOE evaluation and approval. The Head of DOE Field Element must complete a review and provide written approval of the contractor's worker safety and health program, within 90 days of receiving the document. The worker safety and health program and any updates are deemed approved 90 days after submission if they are not specifically approved or rejected by DOE earlier. (1) Beginning May 25, 2007, no work may be performed at a covered workplace unless an approved worker safety and health program is in place for the workplace. (2) Contractors must send a copy of the approved program to the Assistant Secretary for Environment, Safety and Health.	Not Included in WSHP
851.11 (b)(3)	Contractors must furnish a copy of the approved worker safety and health program, upon written request, to the affected workers or their designated representatives.	1.7 Coordination with Labor Organizations
851.11 (c)(1),(2)&(3)	Updates. (1)Contractors must submit an update of the worker safety and health program to the appropriate Head of DOE Field Element, for review and approval whenever a significant change or addition to the program is made, or a change in contractors occurs. (2) Contractors must submit annually to DOE either an updated worker safety and health program for approval or a letter stating that no changes are necessary in the currently approved worker safety and health program. (3) Contactors must incorporate in the worker safety and health program any changes, conditions, or workplace safety and health standards directed by DOE consistent with the requirements of this part and DEAR 970.5204-2, Laws, Regulations and DOE Directives (December, 2000) and associated contract clauses.	1.11 Revisions
851.11 (d)(1)&(2)	If a contractor employs or supervises workers who are represented for collective bargaining by a labor organization, the contractor must: (1) Give the labor organization timely notice of the development and implementation of the worker safety & health program and any updates thereto; and (2) Upon timely request, bargain concerning implementation of this part, consistent with the federal Labor laws	1.7 Coordination with Labor Organizations
851.12 (a)&(b)	(a) Contractors must implement the requirements of this part. (b) Nothing in this part precludes a contractor from taking any additional protective	LBNL WSHP

	action that is determined to be necessary to protect the safety and health of workers.	
851.13 (a)	Contractors must achieve compliance with all the requirements of Subpart C of this part, and their approved worker safety and health program no later than May 25, 2007. Contractors may be required to comply contractually with the requirements of this rule before February 9, 2007.	LBNL WSHP
851.13 (b)	In the event a contractor has established a written safety and health program, an Integrated Safety Management System (ISM) description pursuant to the DEAR Clause, or an approved Work Smart Standards (WSS) process before the date of issuance of the final rule, the Contractor may use that program, description, or process as the worker safety and health program required by this part if the appropriate Head of the DOE Field Element approves such use on the basis of written documentation provided by the contractor that identifies the specific portions of the program, description, or process, including any additional requirements or implementation methods to be added to the existing program, description, or process, that satisfy the requirements of this part and that provide a workplace as safe and healthful as would be provided by the requirements of this part.	Not Applicable – wrote new WSHP
851.13 (c)	Nothing in this part shall be construed to limit or otherwise affect contractual obligations of a contractor to comply with contractual requirements that are not inconsistent with the requirements of this part.	LBNL WSHP
851.20	Management responsibilities Contractors are responsible for the safety and health of their workforce and must ensure that contractor management at a covered workplace:	4 Management Responsibilities
851.20 (a)(1)	Establish written policy, goals, and objectives for the worker safety and health program;	4.1 Safety Policy, ISMS Guiding Principles, ES&H Goals, and ES&H Objectives
851.20 (a)(2)	Use qualified worker safety and health staff (e.g., a certified industrial hygienist, or safety professional) to direct and manage the program;	4.2 Qualified Worker Safety & Health Staff
851.20 (a)(3)	Assign worker safety and health program responsibilities, evaluate personnel performance, and hold personnel accountable for worker safety and health performance;	4.3 Accountability
851.20 (a)(4)	Provide mechanisms to involve workers and their elected representatives in the development of the worker safety and health program goals, objectives, and performance measures and in the identification and control of hazards in the workplace;	1.7 Coordination with Labor Organizations
851.20 (a)(5)	Provide workers with access to information relevant to the worker safety and health program;	4.5 Access to Information
851.20 (a)(6)	Establish procedures for workers to report without reprisal job-related fatalities, injuries, illnesses, incidents, and hazards and make recommendations about appropriate ways to control those hazards;	4.6 Responding to Reports
851.20 (a)(7)	Provide for prompt response to such reports and recommendations;	4.6 Responding to Reports
851.20 (a)(8)	Provide for regular communication with workers about workplace safety and health matters;	4.7 Safety & health Communications

851.20 (a)(9)	Establish procedures to permit workers to stop work or decline to perform an assigned task because of a reasonable belief that the task poses an imminent risk of death, serious physical harm, or other serious hazard to workers, in circumstances where the workers believe there is insufficient time to utilize normal hazard reporting and abatement procedures; and	4.8 Stop Work Authority
851.20 (a)(10)	Inform workers of their rights and responsibility by appropriate means, including posting the DOE-designated Worker Protection Poster in the workplace where it is accessible to all workers.	4.9 Informing Workers of Rights
		4.10 Budgeting For Safety
851.20 (b)	Worker rights and responsibilities. Workers must comply with the requirements of this part, including the worker safety and health program, which are applicable to their own actions and conduct. Workers at a covered workplace have the right, without reprisal, to:	5 Worker Rights
851.20 (b)(1)	Participate in activities described in this section on official time;	5.1 Participating on Official Time
851.20 (b)(2)(i)	DOE safety and health publications;	5.2 Access to Information
851.20 (b)(2)(ii)	The worker safety and health program for the covered workplace;	5.2 Access to Information
851.20 (b)(2)(iii)	The standards, controls, and procedures applicable to the covered workplace;	5.2 Access to Information
851.20 (b)(2)(iv)	The safety and health poster that informs the worker of relevant rights and responsibilities;	5.2 Access to Information
851.20 (b)(2)(v)	Limited information on any recordkeeping log (OSHA Form 300). Access is subject to Freedom of Information Act requirements and restrictions; and	5.2 Access to Information
851.20 (b)(2)(vi)	The DOE Form 5484.3 (the DOE equivalent to OSHA Form 301) that contains the employee's name as the injured or ill worker;	5.2 Access to Information
851.20 (b)(3)	Be notified when monitoring results indicate the worker was overexposed to hazardous materials;	5.3 Notification of Monitoring Results
851.20 (b)(4)	Observe monitoring or measuring of hazardous agents and have the results of their own exposure monitoring;	5.4 Observation of Monitoring
851.20 (b)(5) 851.20 (b)(6)	A representative authorized by employees may accompany the Director or his authorized personnel during the physical inspection of the workplace for the purpose of aiding the inspection. When no authorized employee representative is available, the Director or his authorized representative must consult, as appropriate, with employees on matters of worker safety and health; Request and receive results of inspections and accident investigations;	5.5 Inspections
851.20 (b)(7)	Express concerns related to worker safety and health;	5.6 Worker Concerns
851.20 (b)(8)	Decline to perform an assigned task because of a reasonable belief that, under the circumstances, the task poses an imminent risk of death or serious physical harm to the worker coupled with a reasonable belief that there is insufficient time to seek effective redress through normal hazard reporting and abatement procedures; and	5.7 Refusal to Work

851.20 (b)(9)	Stop work when the worker discovers employee exposures to imminently dangerous conditions or other serious hazards; provided that any stop work authority must be exercised in a justifiable and responsible manner in accordance with procedures established in the approved worker safety and health program.	5.8 Stop Work Authority
		6 Worker Responsibilities
		6.1 Safety
		6.2 Reporting Hazards
		6.3 Reporting Injuries and Illnesses
851.21	Hazard identification and assessment.	7 Hazard Identification and Assessment
851.21 (a)	Contractors must establish procedures to identify existing and potential workplace hazards and assess the risk of associated workers injury and illness. Procedures must include methods to:	7.1 Identifying Workplace Hazards and Assessing Risk
851.21 (a)(1)	Assess worker exposure to chemical, physical, biological, or safety workplace hazards through appropriate workplace monitoring;	7.2 Worker Exposure Assessment
851.21 (a)(2)	Document assessment for chemical, physical, biological, and safety workplace hazards using recognized exposure assessment and testing methodologies and using of accredited and certified laboratories;	7.3 Documenting & Recording Workplace
851.21 (a)(3)	Record observations, testing and monitoring results;	7.3 Documenting & Recording Workplace Assessments
851.21 (a)(4)	Analyze designs of new facilities and modifications to existing facilities and equipment for potential workplace hazards;	7.4 New Construction and Facilities Modifications Design
851.21 (a)(5)	Evaluate operations, procedures, and facilities to identify workplace hazards;	7.5Evaluating Operations, Procedures & Facilities
851.21 (a)(6)	Perform routine job activity-level hazard analyses;	7.6 Activity-Level Hazard Analysis
851.21 (a)(7)	Review site safety and health experience information; and	7.7 Reviewing Safety and Health Experience
851.21 (a)(8)	Consider interaction between workplace hazards and other hazards such as radiological hazards.	7.8 Interactions Between Workplace and Other Hazards
851.21 (b)	Contractors must submit to the Head of DOE Field Element a list of closure facility hazards and the established controls within 90 days after identifying such hazards. The Head of DOE Field Element, with concurrence by the Cognizant Secretarial Officer, has 90 days to accept the closure facility hazard controls or direct additional actions to either:	7.9 Closure Facilities Hazards & Controls
851.21 (b)(1)	Achieve technical compliance; or	7.9 Closure Facilities Hazards &

		Controls
851.21 (b)(2)	Provide additional controls to protect the workers.	7.9 Closure Facilities Hazards & Controls
851.21 (c)	Contractors must perform the activities identified in paragraph (a) of this section, initially to obtain baseline information and as often thereafter as necessary to ensure compliance with the requirements in this Subpart.	7.2 Worker Exposure Assessment
851.22 (a)	Hazard prevention and abatement. Contractors must establish and implement a hazard prevention and abatement process to ensure that all identified and potential hazards are prevented or abated in a timely manner.	8 Hazard Control and Abatement
851.22 (a)(1)	For hazards identified either in the facility design or during the development of procedures, controls must be incorporated in the appropriate facility design or procedure.	8.1 Development of Controls From Facility Design & Procedures Development
851.22 (a)(2)	For existing hazards identified in the workplace, contractors must:	8.2 Managing Identified Safety & Health Noncompliances
851.22 (a)(2)(i)	Prioritize and implement abatement actions according to the risk to workers;	8 Hazard Control and Abatement
851.22 (a)(2)(ii)	Implement interim protective measures pending final abatement; and	8.2 Managing Identified Safety & Health Noncompliances
851.22 (a)(2)(iii)	Protect workers from dangerous safety and health conditions;	8 Hazard Control and Abatement
851.22 (b)	Contractors must select hazard controls based on the following hierarchy:	8 Hazard Control and Abatement
851.22 (b)(1)	Elimination or substitution of the hazards where feasible and appropriate;	8 Hazard Control and Abatement
851.22 (b)(2)	Engineering controls where feasible and appropriate;	8 Hazard Control and Abatement
851.22 (b)(3)	Work practices and administrative controls that limit worker exposures; and	8 Hazard Control and Abatement
851.22 (b)(4)	Personal protective equipment.	8 Hazard Control and Abatement
851.22 (c)	Contractors must address hazards when selecting or purchasing equipment, products, and services.	8.3 Purchasing Equipment, Products, and Services
851.23	Safety & Health Standards (a) Contractors must comply with the following safety and health standards that are applicable to the hazards at their covered workplace: (1) Title 10 Code of Federal Regulations (CFR) 850, “Chronic Beryllium Disease Prevention Program.”	9 Safety and Health Standards

	(2) Title 29 CFR, Parts 1904.4 through 1904.11, 1904.29 through 1904.33; 1904.44, and 1904.46, "Recording and Reporting Occupational Injuries and Illnesses." (3) Title 29 CFR, Part 1910, "Occupational Safety and Health Standards," excluding 29 CFR 1910.1096, "Ionizing Radiation." (4) Title 29 CFR, Part 1915, "Shipyard Employment." (5) Title 29 CFR, Part 1917, "Marine Terminals." (6) Title 29 CFR, Part 1918, "Safety and Health Regulations for Longshoring." (7) Title 29 CFR, Part 1926, "Safety and Health Regulations for Construction." (8) Title 29 CFR, Part 1928, "Occupational Safety and Health Standards for Agriculture." (9) American Conference of Governmental Industrial Hygienists (ACGIH), "Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices" when the ACGIH Threshold Limit Values (TLVs) are lower (more protective) than permissible exposure limits in 29 CFR 1910. When the ACGIH TLVs are used as exposure limits, contractors must nonetheless comply with the other provisions of any applicable expanded health standard found in 29 CFR 1910. (10) American National Standards Institute (ANSI) Z88.2, "American National Standard Practices for Respiratory Protection," (2004) (incorporated by reference see § 851.27). (11) ANSI Z136.1, "Safe Use of Lasers," (2000) (incorporated by reference see § 851.27). (12) ANSI Z49.1, "Safety in Welding, Cutting and Allied Processes," sections 4.3 and E4.3 (1999) (incorporated by reference see § 851.27). (13) National Fire Protection Association (NFPA) 70, "National Electrical Code," (2005) (incorporated by reference see § 851.27). (14) NFPA 70E, "Electrical Safety in the Workplace," (2004) (incorporated by reference see § 851.27). (b) Nothing in this part must be construed as relieving a contractor from complying with any additional specific safety and health requirement that it determines to be necessary to protect the safety and health of workers.	
851.24 (a)&(b)	(a) Contractors must have a structured approach to their worker safety and health program which at a minimum, include provisions for the following applicable functional areas in their worker safety and health program: construction safety; fire protection; firearms safety; explosives safety; pressure safety; electrical safety; industrial hygiene; occupational medicine; biological safety; and motor vehicle safety. (b) In implementing the structured approach required by paragraph (a) of this section, contractors must comply with the applicable standards and provisions in Appendix A of this part, entitled "Worker Safety and Health Functional Areas."	LBNL WSHP
851.25	Training and information	10 Training
851.25 (a)	Contractors must develop and implement a worker safety and health training and information program to ensure that all workers exposed or potentially exposed to hazards are provided with the training and information on that hazard in order to perform their duties in a safe and healthful manner.	10 Training
851.25 (b)(1)	Training and information for new workers, before or at the time of initial assignment to a job involving exposure to a hazard;	10 Training
851.25 (b)(2)	Periodic training as often as necessary to ensure that workers are adequately trained and informed; and	10 Training
851.25 (b)(3)	Additional training when safety and health information or a change in workplace conditions indicates that a new or increased hazard exists.	10 Training

851.25 (c)	Contractors must provide training and information to workers who have worker safety and health program responsibilities that is necessary for them to carry out those responsibilities.	10 Training
§ 851.26 (a)(1)	Contractors must: Establish and maintain complete and accurate records of all hazard inventory information, hazard assessments, exposure measurements, and exposure controls.	Chapter 11 Recordkeeping and Reporting
§ 851.26 (a)(2)	Ensure that the work-related injuries and illnesses of its workers and subcontractor workers are recorded and reported accurately and consistent with DOE Manual 231.1-1A, Environment, Safety and Health Reporting Manual, September 9, 2004 (incorporated by reference, see §851.27).	Chapter 11 Recordkeeping and Reporting
§ 851.26 (a)(3)	Comply with the applicable to occupational injury and illness recordkeeping and reporting workplace safety and health standards in § 851.23 of this part at their site, unless otherwise directed in DOE Manual 231.1-1A.	11 Recordkeeping and Reporting
§ 851.26 (a)(4)	Not conceal nor destroy any information concerning non-compliance or potential noncompliance with the requirements of this part.	11 Recordkeeping and Reporting
851.26 (b)(1)	Contractors must: Report and investigate accidents, injuries and illness; and	11 Recordkeeping and Reporting
851.26 (b)(2)	Analyze related data for trends and lessons learned (reference DOE Order 225.1A, Accident Investigations, November 26, 1997).	11 Recordkeeping and Reporting
		12 Variances, Code of Record and Equivalencies
		13 Enforcement
		Appendix A Glossary
		Appendix B LBNL Offsite, Leased Facilities
		Appendix C List of Memorandums of Understanding and Agreements
		Appendix D 10 CFR 851 Implementation Matrix
		Appendix E List of Closure Facilities, Hazards and Controls
		Appendix F Functional Areas
App. A1	Construction safety.	App. F1 Construction Safety
App. A1 (a)	For each separately definable construction activity (e.g., excavations, foundations, structural steel, roofing) the construction contractor must:	App. F1 Construction Safety
App. A1 (a)(1)	Prepare and have approved by the construction manager an activity hazard analysis prior to commencement of affected work. Such analyses must:	App. F1 Construction Safety

App. A1 (a)(1)(i)	Identify foreseeable hazards and planned protective measures;	App. F1 Construction Safety
App. A1 (a)(1)(ii)	Address further hazards revealed by supplemental site information (e.g., site characterization data, as-built drawings) provided by the construction manager;	App. F1 Construction Safety
App. A1 (a)(1)(iii)	Provide drawings and/or other documentation of protective measures for which applicable Occupational Safety and Health Administration (OSHA) standards require preparation by a Professional Engineer or other qualified professional, and	App. F1 Construction Safety
App. A1 (a)(1)(iv)	Identify competent persons required for workplace inspections of the construction activity, where required by OSHA standards.	App. F1 Construction Safety
App. A1 (a)(2)	Ensure workers are aware of foreseeable hazards and the protective measures described within the activity analysis prior to beginning work on the affected activity.	App. F1 Construction Safety
App. A1 (a)(3)	Require that workers acknowledge being informed of the hazards and protective measures associated with assigned work activities. Those workers failing to utilize appropriate protective measures must be subject to the construction contractor's disciplinary process.	App. F1 Construction Safety
App. A1 (b)	During periods of active construction (i.e., excluding weekends, weather delays, or other periods of work inactivity), the construction contractor must have a designated representative on the construction worksite who is knowledgeable of the project's hazards and has full authority to act on behalf of the construction contractor. The contractor's designated representative must make frequent and regular inspections of the construction worksite to identify and correct any instances of noncompliance with project safety and health requirements.	App. F1 Construction Safety
App. A1 (c)	Workers must be instructed to report to the construction contractor's designated representative hazards not previously identified or evaluated. If immediate corrective action is not possible or the hazard falls outside of project scope, the construction contractor must immediately notify affected workers, post appropriate warning signs, implement needed interim control measures, and notify the construction manager of the action taken. The contractor or the designated representative must stop work in the affected area until appropriate protective measures are established.	App. F1 Construction Safety
App. A1 (d)	The construction contractor must prepare a written construction project safety and health plan to implement the requirements of this section and obtain approval of the plan by the construction manager prior to commencement of any work covered by the plan. In the plan, the contractor must designate the individual(s) responsible for on-site implementation of the plan, specify qualifications for those individuals, and provide a list of those project activities for which subsequent hazard analyses are to be performed. The level of detail within the construction project safety and health plan should be commensurate with the size, complexity and risk level of the construction project. The content of this plan need not duplicate those provisions that were previously submitted and approved as required by § 851.11 of this part.	App. F1 Construction Safety
App. A2	Fire protection.	App. F2 Fire Protection
App. A2 (a)	Contractors must implement a comprehensive fire safety and emergency response program to protect workers commensurate with the nature of the work that is performed. This includes appropriate facility and site-wide fire protection, fire alarm notification and egress features, and access to a fully staffed, trained, and equipped emergency response organization that is capable of responding in a timely and effective manner to site emergencies.	App. F2 Fire Protection
App. A2 (b)	An acceptable fire protection program must include those fire protection criteria and procedures, analyses, hardware and systems, apparatus and equipment, and personnel that would comprehensively ensure that the objective in paragraph 2(a) of this section is met. This includes meeting applicable building codes and National Fire Protection Association codes and standards.	App. F2 Fire Protection
App. A3	Explosives Safety	App.F3 Explosives Safety

		Not Applicable at LBNL
App. A4	Pressure safety. Contractors must establish safety policies and procedures to ensure that pressure systems are designed, fabricated, tested, inspected, maintained, repaired, and operated by trained and qualified personnel in accordance with applicable and sound engineering principles Contractors must ensure that all pressure vessels, boilers, air receivers, and supporting piping systems conform to: The applicable American Society of Mechanical Engineers (ASME) Boilers and Pressure Vessel Code; sections I through section XII including applicable Code Cases The applicable ASME B.31 Standards of Pressure Piping; and or; The strictest applicable state and local codes. When national consensus codes are not applicable (because of pressure range, vessel geometry, use of special materials, etc.), contractors must implement measures to provide equivalent protection and ensure a level of safety greater than or equal to the level of protection afforded by the ASME or applicable state or local code. Measures must include the following: Design drawings, sketches, and calculations must be reviewed and approved by a qualified independent design professional (i.e., professional engineer). Documented organizational peer review is acceptable. Qualified personnel must be used to perform examinations and inspections of materials, in-process fabrications, non-destructive tests, and acceptance test. Documentation, traceability, and accountability must be maintained for each pressure vessel or system, including descriptions of design, pressure, testing, operation, repair, and maintenance.	App. F4 Pressure Safety
App A5	Firearms Safety	App. F5 Firearms Safety Not Applicable at LBNL
App. A6	Contractors must implement a comprehensive industrial hygiene program that includes at least the following elements: (a) Initial or baseline surveys and periodic resurveys and /or exposure monitoring as appropriate of all work areas or operations to identify and evaluate potential worker health risks; (b) Coordination with planning and design personnel to anticipate and control health hazards that proposed facilities and operations would introduce; (c) Coordination with cognizant occupational medical, environmental, health physics, and work planning professionals; (d) Policies and procedures to mitigate the risk from identified and potential occupational carcinogens; (e) Professionally and technically qualified industrial hygienists to manage and implement the industrial hygiene program; and (f) Use of respiratory protection equipment tested under the DOE Respirator Acceptance Program for Supplied-air Suits (DOE-Technical Standard-1167-2003) when National Institute for Occupational Safety and Health-approved respiratory protection does not exist for DOE tasks that require such equipment. For security operations conducted in accordance with Presidential Directive Decision 39, U.S. POLICY ON COUNTER TERRORISM, use of Department of Defense military type masks for respiratory protection by security personnel is acceptable.	App F6 Industrial Hygiene
App. A7	Biological safety. (a) Contractors must establish and implement a biological safety program that:	App. F7 Biological Safety

	(1) Establishes an Institutional Biosafety Committee (IBC) or equivalent. The IBC must: (i) Review any work with biological etiologic agents for compliance with applicable Center for Disease Control (CDC), National Institutes of Health (NIH), World Health Organization (WHO), and other international, Federal, state, and local guidelines and assess the containment level, facilities, procedures, practices, and training and expertise of personnel; and (ii) Review the site's security, safeguards, and emergency management plans and procedures to ensure they adequately consider work involving biological etiologic agents. (2) Maintains an inventory and status of biological etiologic agents, and provide to the responsible field and area office, through the laboratory IBC (or its equivalent), an annual status report describing the status and inventory of biological etiologic agents and the biological safety program. (3) Provides for submission to the appropriate Head of DOE Field Element, for review and concurrence before transmittal to the Center for Disease Control (CDC), each Laboratory Registration/Select Agent Program registration application package requesting registration of a laboratory facility for the purpose of transferring, receiving, or handling biological select agents. (4) Provides for submission to the appropriate Head of DOE Field Element, a copy of each CDC Form EA-101, Transfer of Select Agents, upon initial submission of the Form EA-101 to a vendor or other supplier requesting or ordering a biological select agent for transfer, receipt, and handling in the registered facility. Submit to the appropriate Head of DOE Field Element the completed copy of the Form EA-101, documenting final disposition and/or destruction of the select agent, within 10 days of completion of the Form EA-101. (5) Confirms that the site safeguards and security plans and emergency management programs address biological etiologic agents, with particular emphasis on biological select agents. (6) Establishes an immunization policy for personnel working with biological etiologic agents based on the evaluation of risk and benefit of immunization.	
App. A8	Occupational Medicine. Contractors must establish and provide comprehensive occupational medicine services to workers employed at a covered work place who: (i) Work on a DOE site for more than 30 days in a 12-month period; or (ii) Are enrolled for any length of time in a medical or exposure monitoring program required by this rule and/or any other applicable Federal, State or local regulation, or other obligation. (b) The occupational medicine services must be under the direction of a graduate of a school of medicine or osteopathy and licensed for the practice of medicine in the state in which the site is located. (c) Occupational medical physicians, occupational health nurses, physician's assistants, nurse practitioners, psychologists, employee assistance counselors, and other occupational health personnel providing occupational medicine services must be licensed, registered, or certified as required by Federal or State law where employed. (d) Contractors must provide the occupational medicine providers access to hazard information by promoting its communication, coordination, and sharing among operating and environment, safety, and health protection organizations. (1) Contractors must provide the occupational medicine providers with access to information on the following: (i) Current information about actual or potential work-related site hazards (chemical, radiological, physical, biological, or ergonomic); (ii) Employee job-task and hazard analysis information, including essential job functions;	App. F8 Occupational Medicine

	(iii) Actual or potential work-site exposures of each employee; and (iv) Personnel actions resulting in a change of job functions, hazards or exposures. (2) Contractors must notify the occupational medicine providers when an employee has been absent because of an injury or illness for more than 5 consecutive workdays (or an equivalent time period for those individuals on an alternative work schedule); (3) Contractors must provide the occupational medicine provider information on, and the opportunity to participate in, worker safety and health team meetings and committees; (4) Contractors must provide occupational medicine providers access to the workplace for evaluation of job conditions and issues relating to workers' health. (e) A designated occupational medicine provider must: (1) Plan and implement the occupation medicine services; and (2) Participate in worker protection teams to build and maintain necessary partnerships among workers, their representatives, managers, and safety and health protection specialists in establishing and maintaining a safe and healthful workplace.	
App. A8 (Continued)	(f) A record, containing any medical, health history, exposure history, and demographic data collected for the occupational medicine purposes, must be developed and maintained for each employee for whom medical services are provided. All occupational medical records must be maintained in accordance with Executive Order 13335, Incentives for the Use of Health Information Technology. (1) Employee medical, psychological, and employee assistance program (EAP) records must be kept confidential, protected from unauthorized access, and stored under 341 conditions that ensure their long-term preservation. Psychological records must be maintained separately from medical records and in the custody the designated psychologist in accordance with 10 CFR 712.38(b)(2). (2) Access to these records must be provided in accordance with DOE regulations implementing the Privacy Act and the Energy Employees Occupational Illness Compensation Program Act. (g) The occupational medicine services provider must determine the content of the worker health evaluations, which must be conducted under the direction of a licensed physician, in accordance with current sound and acceptable medical practices and all pertinent statutory and regulatory requirements, such as the Americans with Disabilities Act. (1) Workers must be informed of the purpose and nature of the medical evaluations and tests offered by the occupational medicine provider. (i) The purpose, nature and results of evaluations and tests must be clearly communicated verbally and in writing to each worker provided testing; (ii) The communication must be documented in the worker's medical record; and (2) The following health evaluations must be conducted when determined necessary by the occupational medicine provider for the purpose of providing initial and continuing assessment of employee fitness for duty. (i) At the time of employment entrance or transfer to a job with new functions and hazards, a medical placement evaluation of the individual's general health and physical and psychological capacity to perform work will establish a baseline record of physical condition and assure (ii) Periodic, hazard-based medical monitoring or qualification-based fitness for duty evaluations required by regulations and standards, or as recommended by the occupational medicine services provider, will be provided on the frequency required. (iii) Diagnostic examinations will evaluate employee's injuries and illnesses to determine work-relatedness, the applicability of medical restrictions, and referral for definitive care, as appropriate. (iv) After a work-related injury or illness or an absence due to any injury or illness lasting 5 or more consecutive workdays (or an equivalent time period for those individuals on an alternative work schedule), a return to work evaluation will determine	App. F8 Occupational Medicine

	the individual's physical and psychological capacity to perform work and return to duty.	
App. A8 (Continued)	(v) At the time of separation from employment, individuals shall be offered a general health evaluation to establish a record of physical condition. (h) The occupational medicine provider must monitor ill and injured workers to facilitate their rehabilitation and safe return to work and to minimize lost time and its associated costs. (1) The occupational medicine provider must place an individual under medical restrictions when health evaluations indicate that the worker should not perform certain job tasks. The occupational medicine provider must notify the worker and contractor management when employee work restrictions are imposed or removed. (i) Occupational medicine provider physician and medical staff must, on a timely basis, communicate results of health evaluations to management and safety and health protection specialists to facilitate the mitigation of worksite hazards. (j) The occupational medicine provider must include measures to identify and manage the principal preventable causes of premature morbidity and mortality affecting worker health and productivity. (1) The contractor must include programs to prevent and manage these causes of morbidity when evaluations demonstrate their cost effectiveness. (2) Contractors must make available to the occupational medicine provider appropriate access to information from health, disability, and other insurance plans (deidentified as necessary) in order to facilitate this process. (k) The occupational medicine services provider must review and approve the medical and behavioral aspects of employee counseling and health promotional programs, including the following types: (1) Contractor-sponsored or contractor-supported EAPs; (2) Contractor-sponsored or contractor-supported alcohol and other substance abuse rehabilitation programs; and (3) Contractor-sponsored or contractor-supported wellness programs. (4) The occupational medicine services provider must review the medical aspects of immunization programs, blood-borne pathogens programs, and bio-hazardous waste programs to evaluate their conformance to applicable guidelines. (5) The occupational medicine services provider must develop and periodically review medical emergency response procedures included in site emergency and disaster preparedness plans. The medical emergency responses must be integrated with nearby community emergency and disaster plans.	App. F8 Occupational Medicine
App. A9	Motor Vehicle Safety (a) Contractors must implement a motor vehicle safety program to protect the safety and health of all drivers and passengers in Government-owned or -leased motor vehicles and powered industrial equipment (i.e., fork trucks, tractors, platform lift trucks, and other similar specialized equipment powered by an electric motor or an internal combustion engine). (b) The contractor must tailor the motor vehicle safety program to the individual DOE site or facility, based on an analysis of the needs of that particular site or facility. (c) The motor vehicle safety program must address, as applicable to the contractor's operations: (1) Minimum licensing requirements (including appropriate testing and medical qualification) for personnel operating motor vehicles and powered industrial equipment; (2) Requirements for the use of seat belts and provision of other safety devices; (3) Training for specialty vehicle operators; (4) Requirements for motor vehicle maintenance and inspection;	App. F9 Motor Vehicle Safety

	(5) Uniform traffic and pedestrian control devices and road signs; (6) On-site speed limits and other traffic rules; (7) Awareness campaigns and incentive programs to encourage safe driving; and (8) Enforcement provisions.	
App. A10.	Electrical Safety. Contractors must implement a comprehensive electrical safety program appropriate for the activities at their site. This program must meet the applicable electrical safety codes and standards referenced in §851.23.	App. F10 Electrical Safety

Appendix E
List of Closure Facility Hazards and Controls

Building	Reason For Closure	Hazard	Control
25	Obsolete	Seismic	Operating pending D&D. The building is not normally occupied. A single experiment continues in operation within the space, but is not attended. Replacement building is planned. Building is being abandoned in an orderly manner as a consequence of "Very Poor" seismic rating. Building looks normal but would not withstand a major earthquake.
50D	Obsolete. The abandoned Bevatron accelerator cannot be adaptively resused and should be removed.	seismic	Shutdown pending D&D, storage occupancy; access restricted. Normal occupancy is minimized to reduce exposure to building collapse in the event of an earthquake in this seismically Very Poor building.
51	Obsolete. Bevatron complex.	seismic	D&D in Progress, partial occupancy is fenced to restrict access. Normal occupancy is minimized to reduce exposure to building collapse in the event of an earthquake in this seismically Fair building.
51A	Obsolete. Bevatron complex.	seismic	D&D in Progress, partial occupancy is fenced to restrict access. . Normal occupancy is minimized to reduce exposure to building collapse in the event of an earthquake in this seismically Fair building.

71G	Obsolete.	n/a	Shutdown pending D&D Building is locked. Access is controlled by Facilities Division.
73A	Obsolete	n/a	Shutdown pending D&D. Unoccupied 400 sqft. Utility equipment building.
75E	Obsolete.	n/a	Shutdown pending D&D Building is locked. Access is controlled by Facilities Division.

Per FIMS database, as of April, 2008

Appendix F
Worker Safety & Health Functional Areas

The documents that are cited in this appendix are incorporated by reference, not including the references cited in the incorporated documents. Citations of specific sections of the Health & Safety Manual (PUB-3000), the Regulations and Procedures Manual (RPM) or the Operating and Quality Management Plan (OQMP, PUB-3111) refer to the most current version of these documents as of the date of publication of this document, the LBNL Worker Safety and Health Program.

1 Construction Safety

The LBNL Construction Safety Program is governed by ISMS principles. Construction work performed by LBNL workers complies with 10 CFR 851, 29 CFR 1926, applicable portions of 29CFR1910 (except 29CFR1910.1096) and Title 8 California Code of Regulations, Construction Safety Orders. Construction subcontractors, labor-only contractors, and LBNL workers may perform construction work at LBNL. Labor-only contractors and LBNL workers perform construction that requires little or no design.

PUB-3000, Chapter 10, describes how the ISMS functions are applied to LBNL work, including construction work, and identifies the documentation that is required for work activities. Such documentation includes:

- Job hazard analysis prior to commencement of affected work (Section 10.6), that addresses:
  - Identification of foreseeable hazards and planned protective measures (Section 10.6.1);
  - Further hazards revealed by supplemental site information (Section 10.6.1);
  - Provision of drawings and/or other documentation of protective measures for which applicable OSHA standards require preparation by a professional Engineer or other qualified professional (Section 10.7); and
  - Identification of competent persons required for workplace inspections of the construction activity, where required by OSHA standards (Section 10.4.3).
- Subcontractor pre-qualification (Section 10.3)
- Subcontractor Injury & Illness Prevention Program (IIPP) (Section 10.5)

An essential element of LBNL's requirements for contractors is that during periods of active construction, contractors must ensure that an appropriately qualified designated representative who is knowledgeable of the project's hazards and has full authority to act on behalf of the construction contractor is on site at all times (Section 10.4). Workers are required to report hazards not previously identified or evaluated to the designated representative. If immediate corrective action is not possible or the hazard falls outside of the project scope, the construction contractor must immediately notify affected workers, post appropriate warning signs, implement needed interim control measures, and notify the construction manager of the action taken. The contractor or the designated representative must stop work in the affected area until appropriate protective measures are established (Section 10.6.2). Any employee who observes an imminent danger situation is responsible for stopping the work and reporting the situation to the subcontractor designated representative (Section 10.12).

LBNL Standard Project Specifications (Design Specs), describe the LBNL Procured Services ES&H Program, which is used to manage subcontractors who provide construction services. This program extends the ISMS to LBNL subcontractors, and requires subcontractors to develop and provide:

- Section 01020 1.04 requires a comprehensive injury & illness prevention program.
- Section 01020 1.05 requires an activity hazard analysis and abatement plan in addition to a comprehensive injury & illness prevention program for some work tasks.

Subcontractors are responsible for the flow down of safety and health requirements to their lower-tier subcontractors and the safety and health interactions with them (Section 10.5).

LBNL Standard Project Specifications (Design Specs) contains requirements and guidance for LBNL project planners and authorizing organizations in managing the facility design and construction process including:

- management of facility design and construction activities, including modification to existing facilities and equipment, from conceptual design through construction

- flow down of safety and health requirements to facility design and construction subcontracts
- hazard identification and risk assessment in facility design and construction
- facility design considerations that are unique to LBNL
- Provision of OSHA required drawings
- safety notes

Each contractor is required to provide trained and qualified Competent or Qualified Persons as required by OSHA standards to oversee activities such as: Asbestos work; Hazardous waste operations; Excavation work; Use of Cranes; Entry into confined spaces; Fall protection; Steel erection; and Scaffolding (Sections 10.4.3 and 10.4.4).

Safety training in hazard recognition and control provides a valuable support function for the ISMS principles. Construction safety training at LBNL includes:

- Pre-job safety orientation (Section 10.9.1)
- Tailgate safety meetings (Toolbox Talks) (Section 10.9.2)
- Safety Instructions for employees (Section 10.9.3)

2 Fire Protection

LBNL has an established, comprehensive Fire Safety and Emergency Response Program designed to protect workers. The program includes appropriate facility and site-wide fire protection, fire alarm notification and egress features, and a fully staffed, trained, and equipped emergency response organization that is capable of responding in a timely and effective manner to site emergencies.

The LBNL Fire Protection Program implements DOE Order 420.1, DOE Order 440.1A, and all other DOE-prescribed fire protection codes and standards that are applicable to LBNL, including those adopted as WSSs, e.g., National Fire Protection Association (NFPA) standards.

The LBNL Fire Safety and Emergency Response Programs are implemented by the following LBNL documents.

- LBNL Fire Protection Program, dated January 2007, describes the LBNL Fire Protection Program, including the fire protection organization, training, responsibilities, and requirements for the design, installation, operability, and testing of fire protection systems.

- PUB-3000, Chapter 12 contains requirements for the design, installation, and testing of fire protection systems; guidance to help LBNL staff comply with DOE and LBNL fire protection criteria; hot work permit requirements (section 12.6); and responsibilities.
- Fire Hazard Analyses (FHAs) have been conducted for major facilities and can be obtained from LBNL Fire Protection.

The Baseline Needs Assessment, dated May 25, 2005, reviewed the staffing levels, training, drills, contractual requirements, procedures, communications, structural and wildland equipment and interaction with LBNL's Emergency Preparedness Program. The study concluded that our subcontractor, ACFD, had a thorough training program with very capable staff, well equipped to respond to emergencies at LBNL, extensively capable of mitigating hazardous materials incidents with adequate staffing levels.

3 Explosives Safety (Not Applicable at LBNL)

Explosives safety per 851 requirements are not applicable at LBNL because there is only a minor amount of chemicals on the site, in small quantities, that may exhibit the characteristics of explosive as defined in DOE Manual 440.1-1A, "DOE Explosives Safety Manual, Contractor Requirements Document (Attachment 2), January 9, 2006.. However, these chemicals are not used to detonate or deflagrate, but rather are being studied for their chemical properties. These chemicals are handled and controlled in the same safe manner as other reactive chemicals used at LBNL (such as peroxides) as outlined in the chemical hygiene plan at: http://www.lbl.gov/ehs/chsp/html/reactives.shtml.

4 Pressure Safety

Authority and responsibility for pressure safety at LBNL are shared among the Engineering, Facilities and Environment, Health and Safety Division. LBNL defines low, medium and high hazard pressure systems; requires training of operators of systems; provides guidelines on system design, testing and assembly; adopts applicable codes and standards; and provides guidelines for designers when systems cannot (because of research need) comply with codes.

Specific elements of the LBNL pressure safety program applicable to this Worker Safety and Health Plan include:

- Adoption of ASME Boiler and Pressure Vessel Code, ANSI B31 Code for Pressure Piping, and California Unfired Pressure Vessel Safety Orders for non-research systems.
- PUB-3000, Chapter 7, Sections 7.1, 7.11 and 7.13 (Note: additional references listed in Section 7.13 are NOT incorporated into this Worker Safety and Health Plan)
- PUB-3000, Chapter 7, Appendix B

Policies and procedures for designing (including design review), testing and assembling non-code compliant research pressure systems. This includes the preparation of an Engineering Safety Note for noncompliant systems and/or an Activity Hazard Document for hazardous pressurized contents.

- PUB-3000, Chapter 7, Section 7.6.1
- PUB-3000, Chapter 7, Appendices A, C, and D

5 Firearms Safety (Not Applicable at LBNL)

Firearms are expressly forbidden on any LBNL work location.

6 Industrial Hygiene

The LBNL Industrial Hygiene Program is managed and implemented by professionally qualified industrial hygienists. The program is designed to protect workers from hazardous exposures to chemicals, biohazards and physical agents including noise, thermal stress, and nonionizing electromagnetic radiation.

The Industrial Hygiene Program is implemented through the Industrial Hygiene Group, whose industrial hygienists are responsible for policy and procedure development and assisting line management with implementation.

The Industrial Hygiene Program is governed through the ISMS and implemented by portions of PUB-3000, Chapter 4, and other key ES&H Manual documents. Specific elements of the Industrial Hygiene Program include:

- Hazard Communication in conformance with 29 CFR 1910.1200, and 1910.1450, which describes how workers are informed of the hazards associated with the

chemicals they use and how to obtain additional information. All employees are required to attend Hazard Communication training which is incorporated in EHS 10 Introduction to Environment Health and Safety course..

- PUB-3000, Chapter 4, Sections 4.4.1 through 4.4.2 provide a description of LBNL's approach and requirements for controlling exposures to non-ionizing radiation including laser radiation.
- PUB-3000, Chapter 4, Sections 4.5.1 through 4.5.5 describes the LBNL Hearing Conservation Program and contain requirements for reducing noise and protecting employees who may be exposed to excessive noise levels.
- PUB-3000, Chapter 4, Sections 4.6.1 through 4.6.3 contain requirements and provide guidance to assist designers and users of contaminant control ventilation systems by identifying standards and good practices that need to be followed to ensure that contaminant control ventilation systems are designed, installed, maintained, and used successfully.
- PUB-3000, Chapter 4, Section 4.7.1 addresses occupational exposure to hazardous chemicals in laboratories. It provides general requirements and an overview for planning the acquisition, safe use, handling, storage, inventory management, and disposal of hazardous chemicals used in laboratories. It also addresses mitigating the risk from identified and potential occupational carcinogens in laboratories. As such, it complements, replaces, or supersedes other OSHA requirements regulating the control of hazardous substances. Elements in LBNL's Chemical Hygiene and Safety Plan that are italicized are required by 29 CFR 1910.1200 and 1910.1450 and are specifically incorporated into this Worker Safety and Health Program.
- PUB-3000, Chapter 4, Sections 4.8.1 and 4.8.2 describe LBNL's management of asbestos hazards. Elements in LBNL's Asbestos Management Plan that are italicized are not required by 29 CFR 1910 or 1926 and are specifically NOT incorporated into this Worker Safety and Health Program.
- PUB-3000, Chapter 4, Section 4.9.1 and 4.9.2 describe how Confined Space hazards are mitigated at LBNL. Elements in LBNL's Confined Space Plan that are italicized are not required by 29 CFR 1910 or 1926 and are specifically NOT incorporated into this Worker Safety and Health Program.
- PUB-3000, Chapter 4, Section 4.11 and the Berkeley Lab Lead Compliance Program provide guidance on control of lead hazards. Elements in the Lead Compliance Program that are italicized are not required by 29 CFR 1910 or 1926 and are specifically NOT incorporated into this Worker Health and Safety Plan.

- PUB-3000, Chapter 4, Section 4.12 and the *LBNL Chronic Beryllium Disease Prevention Plan* describe LBNL's compliance with applicable OSHA and DOE (10 CFR 850) regulations regarding exposures to beryllium.
- PUB-3000, Chapter 4, Sections 4.13.1 through 4.13.3 discuss requirements for the use of respiratory protective equipment at LBNL. Requirements are based on OSHA and ANSI standards.
- PUB-3000, Chapter 4, Section 4.14 describes LBNL's requirements for working in hot environments.
- PUB-3000, Chapter 32, Appendix D describes how industrial hygiene surveys are conducted and exposure assessments performed as part of the hazard identification and assessments methodology discussed in Section 7 of this document. Industrial hygiene is only one discipline of the LBNL multi-discipline approach to hazard assessment and is integral to the development and review of safety documents. All work activities at LBNL use the ISMS Description to ensure coordination with:
  - Planning and design personnel to anticipate and control health hazards that proposed facilities and operations would introduce, and
  - Cognizant occupational medical, environmental, health physics, and work planning professionals.

7 Biological Safety

Work with Biological Etiologic Agents and Select Agents at Berkeley Lab is conducted in a safe, environmentally sound, and compliant manner using the principles and functions of Integrated Safety Management (ISM) and work authorization. Line managers and researchers define their biological work, evaluate the biological hazards, determine the risk, and implement required biosafety containment controls (e.g., establish a Biosafety Level). This is accomplished with the assistance and oversight of the Institutional Biosafety Committee (IBC), EH&S Division (e.g., Industrial Hygiene, Waste Management, and Health Services), and other Berkeley Lab ES&H functions as part of the biological safety program.

Biological etiologic agents and select agents have the following specific definitions.

"Biological etiologic agents" are agents of biological origin (e.g., bacterium, fungus, parasite, virus, etc.) that cause disease in humans (i.e., are pathogenic to

humans). See Appendix B of the NIH Guidelines for a list and Risk Group categorization of human etiologic agents. Agents requiring implementation of Biosafety Level 3 or 4 containment are not used or stored at Berkeley Lab.

Reference:

- PUB-3000, Chapter 26 .2.4.2

The term “select agents” is commonly used to describe a list of specific pathogenic agents that are strictly regulated by the Centers for Disease Control and Prevention (CDC) and U.S. Department of Agriculture (USDA) because they may potentially be used as biological weapons or pose a severe threat to human, animal, and plant health.

Reference:

- PUB-3000, Chapter 26.2.5

LBNL’s biological safety program for managing biological etiologic agents and select agents under this Plan includes the program elements listed below:

1. LBNL’s Institutional Biosafety Committee (IBC) reviews the following work, plans, and procedures:

   - Work Review and Assessment. The IBC: a) reviews work with biological etiologic agents for compliance with applicable CDC, NIH, WHO, and other international, Federal, State, and local guidelines that are applicable to biological etiologic agents; and b) assesses the containment level, facilities, procedures, practices, and training and expertise of personnel using these agents.

     Reference:

     - PUB-3000, Chapter 26.2.4.2.1

   - Security, Safeguards, and Emergency Management Plan and Procedure Review. The IBC reviews LBNL’s security, safeguards, and emergency management plans and procedures to ensure they adequately consider work involving biological etiologic agents.

     Reference:

     - PUB-3000, Chapter 26.2.4.2.1

2. Agent Inventory and Status Report. The EH&S Industrial Hygiene Group maintains an inventory and status of biological etiologic agents, and provides to the DOE Berkeley Site Office (through the LBNL IBC) an annual status report describing the status and inventory of biological etiologic agents and their biological safety program.

   Reference:

   - PUB-3000, Chapter 26.2.4.2.2

3. Select Agent Application for Registration. The LBNL select agent EH&S Responsible Official (RO) or Alternate Responsible Official (ARO) submits to the DOE Berkeley Site Office (BSO) each CDC Laboratory Registration/Select Agent Program registration application package requesting registration of a new laboratory facility for the purpose of transferring, receiving, or handling select agents. DOE's review and concurrence is required before transmittal to the CDC.

   Reference:

   - PUB-3000, Chapter 26.2.5.2

4. Select Agent Transfer, Disposition, and/or Destruction. The LBNL select agent EH&S RO or ARO submits to the DOE BSO:

   - A copy of each CDC Transfer of Select Agents form: a) upon initial submission of the form to a vendor or other supplier requesting or ordering a select agent for transfer, receipt, and handling in a registered facility, and b) within ten days upon completion of the form documenting final disposition of the select agent.
   - Documentation of the destruction of a complete stock of a select agent within ten days of the destruction.

     Reference:

     - PUB-3000, Chapter 26.2.5.2

5. Safeguards, Security, and Emergency Management Plans and/or Program Confirmation. The EH&S Security and Emergency Operations and Industrial Hygiene Groups confirm that the site safeguards and security plans and emergency management programs address biological etiologic agents with particular emphasis on biological select agents.

Reference:

- PUB-3000, Chapter 26.2.4.2.2

6. Immunization Policy. The IBC (which includes the LBNL Medical Director and Biosafety Officer) assesses potential vaccines and the need for immunizations when it reviews work to be conducted with biological etiologic agents. Any immunization requirements are then incorporated into the operation's biosafety documentation.

   Reference:

   - PUB-3000, Chapter 26.2.4.2.1

8 Occupational Medicine

LBNL's Occupational Medical Program offers services that help protect workers from occupational hazards; promote good health, prevent disease; and treat and manage work-related injuries and illnesses. The program is implemented by PUB-3000, Chapter 3.

Comprehensive occupational medical services are provided by Health Services to LBNL employees who work at LBNL as required by applicable federal, state, and local regulations and other obligations. The Health Services program manages medical surveillance; provides preplacement, termination, and periodic health evaluations; provides first aid, initial assessment of injuries and illnesses, and appropriate referrals; provides case management, and contributes to health promotion through its Wellness Program. The program staff works closely with other EH&S staff to operate an effective Medical Surveillance Program and with staff from Human Resources to help implement the Laboratory's Return-to-Work Policy (PUB-3000, Chapter 3, Section 3.2)

The Credentialing and Privileging Plan for Health Services Department Health Care Workers is used to ensure that physicians, nurses, nurse practitioners, and other occupational health personnel providing occupational medical services are licensed, registered, or certified as required by federal or state law.

Additional background information may also be checked for certain positions designated as requiring additional review as described in the LBNL Background

Checks Requirements. This list is maintained by the Labor and Employee Relations Unit of the Human Resources Department. (RPM, Section 2.01 (D)(5))

6.1 Role of Health Services in LBNL ES&H Program

Health Services provides support to employees, managers, and safety and health specialists to help ensure that LBNL is a safe and healthy workplace. Health Services clinicians visit work areas to observe general health-related conditions, look for possible hazards and potential health problems, participate in worker safety and health team meetings and committees when appropriate, and assist with any health issues.

Information obtained from the visits is used to prepare for routine and emergency medical care. Recommendations for medical surveillance and medical restrictions are based on clinicians' direct knowledge of the workplace, exposure levels, and other conditions as determined in collaboration with other appropriate health and safety disciplines. (PUB-3000, Chapter 3, Section 3.9).

6.2 Injury & Illness Care

Health Services provides diagnostic examinations to evaluate injuries and illnesses to determine work-relatedness, apply appropriate medical restrictions, and refer for definitive care, as appropriate. Health Services monitors ill and injured workers to facilitate rehabilitation and safe return to work, and to minimize lost time and associated costs.

The Berkeley Lab Return-to-Work Policy requires employees returning to work after one full day or more of lost time due to work-related illness or injury to report to Health Services for an evaluation of their condition and ability to resume customary work. Employees who have been absent for five or more consecutive workdays due to non-occupational illness or injury also are required to report to Health Services with a release to return to work so that their ability to return to work can be determined. This release must include any information regarding medical restrictions that may affect the employee's ability to perform his or her job, as certified by the treating physician. (PUB-3000, Chapter 3, Section 3.11 & RPM Section 1.12 (A)(2) & 2.09(D)(11))

Work restrictions may be placed on an employee's work based on the results of his or her physical examination, illness, or injury. In some cases, Health Services may recommend restrictions on an employee's work assignment or activities and advise line management, the Return to Work Coordinator and

the Human Resources Center, who are jointly responsible for working out, if possible, an accommodation to the restrictions. (PUB-3000, Chapter 3, Section 3.13 & RPM Section 2.01(F)(3))

6.3 Medical Evaluations

Medical evaluations are sometimes necessary to ensure that an employee meets specific physical, medical, and psychological requirements for a given work assignment. Health Services provides hazard-based medical monitoring and qualifications-based medical certification examinations at frequencies required by standards and regulations, and when recommended by the Site Occupational Medical Director. All examinations are conducted under the direction of a licensed physician, in accordance with current sound and acceptable medical practices and all pertinent statutory and regulatory requirements, including the Americans with Disabilities Act. (Health Services Policy and Procedures for Occupational Medical Testing Lawrence Berkeley National Laboratory).

A complete and confidential medical examination is offered to new career employees and temporary employees hired for one year or longer. The components of the recommended examination are derived from the new employee's report of potential exposures. Unless there is a regulatory requirement stating otherwise, all components of the new employee physical are voluntary. Health Services attempts to schedule appointments at the employee's convenience. Employees may submit a written request to have their examination results forwarded to them or their personal physician. (PUB-3000, Chapter 3, Section 3.6).

Medical examinations are also available periodically. Employees under age 40 are offered a complete physical examination every five years; those between age 40 and 50, every three years; and those above age 50, every two years. (PUB-3000, Chapter 3, Section 3.7).

Employees terminating employment at LBNL may be advised to have a termination examination, depending on how recently the employee has undergone a periodic examination. (PUB-3000, Chapter 3, Section 3.8).

The Medical Surveillance Program provides medical examinations and laboratory evaluations to monitor and protect employees who may be at risk

from health hazards at work. (PUB-3000, Chapter 3, Section 3.9 &RPM Section 1.12 (A)(1)).

6.4 Health Information Management

Complete medical records are maintained for employees from the time of their first physical examination. These records are confidential to the extent provided by law and remain in the custody and control of Health Services. Personal health information from an employee's health records may be disclosed only as required by law or if an employee provides written consent for release of information. Records are retained indefinitely. (PUB-3000, Chapter 3, Sections 3.12)

The Employee Assistance program, an off-site program provided by the University of California Health Center (the Tang Center) on the Berkeley campus, offers confidential consultation, assessment, and referral for personal or work-related problems. These records are maintained separately athe Tang Center and are confidential to the extent provided by law. (PUB-3000, Chapter 3, Sections 3.19)

6.5 Health Education & Promotion Programs

To promote and maintain the physical and mental health of employees both on the job and at home, Health Services offers programs in health education, health promotion, and healthy lifestyle intervention. The programs are cost-effective and essential components of a comprehensive health and safety program that promotes a total life, health, and safety philosophy. These programs are designed to reduce the incidence of preventable disease, help employees avoid disease-related work absences, and improve employee effectiveness on the job. Included are services to assist employees with personal health risk assessment, smoking cessation, cardiovascular fitness, and healthy eating. Health-promotion programs complement worksite safety programs to reduce the risk of work-related injuries and reduce health-related costs to the employees and the institution.

Immunizations are available to employees who require such protection during the course of their work at the Laboratory or during work-related travel. Yearly immunization against influenza may be offered to all employees. (PUB-3000, Chapter 2, Section 3.20).

The Employee Assistance Program (EAP) provides assistance to employees with personal and organizational issues (e.g., work problems, substance abuse, family conflict, grieving the loss of a family member or friend, crisis intervention, alcohol/substance abuse rehabilitation). EAP also provides employees and their families, both on- and offsite, with short-term counseling, referrals, and consultation. (PUB-3000, Chapter 3, Sections 3.19 & RPM Section 1.12(B)). The Laboratory and EAP will work with employees and provide the necessary supports for those who experience mental health issues due to stress 0r hardships experienced at work or at home.

Health Services maintains an active role in developing and periodically reviewing the medical portion of the LBNL Emergency Plan. Health Services serves on appropriate LBNL emergency planning committees and regularly participates in emergency drills and exercises involving medical victims. Health Services assists programs with developing medical emergency response plans and self-help programs with establishing first-aid teams. Health Services also works closely with medical personnel in Alameda County through its countywide Emergency Management Services (EMS) Plan. Detailed information about the EMS Plan is contained in PUB-533.

9 Motor Vehicle Safety

The LBNL Motor Vehicle Safety Program applies to vehicles operated on the LBNL main site and campus locations that are government-owned, leased, rented, and privately owned. The program also applies to vehicles used for driving off-site on LBNL business.

Each new employee, guest, or contract worker is required to sign the “LBNL Environment, Health and Safety Work Agreement” (http://www.lbl.gov/ehs/pub811/agreement.html). PUB-3000 Sections 5.8.1 through 5.8.4 addresse vehicle safety tailored to the site.

Motor vehicles used include carts, motorcycles, cars, vans, trucks (1/2 ton to 80,000 pounds gross vehicular weight [GVW]), commuter vans and busses, tractors, specialized vehicles, forklifts, motorized pallet lifts, mobile cranes, boom lifts, scissors lifts, bucket trucks, and upright lifts.

PUB-3000, Chapter 5, Section 5.8 and the LBNL Regulations and Procedures Manual (RPM), Section 1.04, establishes requirements for the safe use, operation and parking of vehicles and bicycles. PUB-3000, Chapter 28, Section 28.5 and Chapter 27, Section 27.5provide requirements for training and certification of forklift and crane operators respectively.

Specific requirements for the use of official vehicles are defined in RPM, Section 1.05. Drivers of official LBNL vehicles must hold a valid California driver license for the class of vehicle that they are authorized to operate.

In accordance with the California seat-belt law, all employees riding in Laboratory-furnished vehicles (or in personal vehicles on official Laboratory business) must wear safety belts at all times. The driver must not operate the vehicle until everyone has fastened their seat belts. (PUB-3000, Chapter 5, Section 5.8, Subsection 5.8.4)

The LBNL policy on operation of motor vehicles is in accordance with the California Vehicle Code, the University of California, and the City of Berkeley traffic code. The primary objective of the LBNL traffic program is to provide a safe environment for both the driver and the pedestrian community. Enforcement provisions are provided in the RPM, Section 105.

As a general guide, the speed limit on LBNL or University property is 40 km/hr (25 mph) unless otherwise posted. Temporary conditions such as road repair, wet weather, poor visibility, and pedestrian traffic require a reduction in speed. (PUB-3000, Chapter 5, Section 5.8, Subsection 5.8.1).

All LBNL cars are leased from General Services Administration (GSA) Sacramento Fleet Management Center. GSA maintains a record of the Periodic Preventative Maintenance (PM) performed on all leased Lab vehicles, as well as the “PM Due” parameters. GSA informs LBNL whenever routine maintenance is needed for vehicles, and the LBNL Plant Maintenance performs the required servicing.

LBNL assures the uniformity of traffic and pedestrian control devices and road signs by adhering to the standards set by Title—3--Highways, CHAPTER—I--FEDERAL HIGHWAY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION PART —5--TRAFFIC OPERATIONS which is included by reference in the California Vehicle Code.

LBNL has demonstrated its commitment to safety for both motor vehicles and bicycles by establishing the Traffic Safety Committee (TC) which provides oversight of the traffic safety program and assists/supports the implementation of traffic safety

improvement. The TC is composed of one or more representatives from the Facilities, EH&S, Human Resources Divisions and the Directorate.

LBNL has also established a bicycle safety taskforce that partnered with the LBNL Bicycle Coalition to generate the LBNL's Bicycle Safety Policy.

LBNL takes the opportunity during "National Traffic Safety Month" to raise the awareness of drivers and bicyclists on the Hill about the need to slow down and respect traffic signs. For example, last year everyone who came to the Lab in a vehicle received a brochure on traffic safety. During The next two days lab officials and police officers were in the Cafeteria lobby during lunch hours with displays highlighting traffic policies and site speed limits. Also, LBNL elevates traffic safety with frequent articles in "Today at Berkeley Lab" a daily electronic newsletter. Examples are articles entitled: "Inspect Your Vehicle For safety", and "Traffic Safety Program-Bicycle Safety". Other articles can be found by searching www.lbl.gov/today/today-archives.html

10 Electrical Safety

LBNL has an established, comprehensive Electrical Safety Program. Only trained and qualified Lab employees are authorized to work on LBNL electrical equipment and circuits. For subcontractors who perform electrical work at LBNL, only California State certified electricians and registered trainees working under the individual direction of a certified electrician are authorized to perform work.

The program is implemented by the following documents:

- PUB-3000 , Chapter 8, contains general requirements for all LBNL work involving the use of electrical equipment and systems including:
  - o application of engineering controls, PPE, and safe work practices
  - o electrical safety considerations
  - o energized electrical work requirements
  - o qualifying and authorizing personnel
  - o employee training

    Note: Section 8.14 (Appendices) of Chapter 8 is not necessary for achieving compliance with 10 CFR 851 electrical safety requirements, and is not to be considered part of this compliance program.

- PUB-3000, Chapter 8, Subsection 8.9.1 and Sub subsection 8.9.3.7 describes the current LBNL assignment of responsibility for the Electrical Authority Having Jurisdiction (AHJ). Electrical Safety AHJ authority has been delegated to LBNL by the DOE-Berkeley Site Office Manager by her letter of June 29, 2007.
- The DOE Model Electrical Safety Program recommends that all DOE contractors establish an AHJ for electrical issues such as examining and approving electrical equipment that has not been tested by a nationally recognized testing laboratory (NRTL). In compliance with these requirements, LBNL has develolped an internal AHJ Equipment Acceptance Program for ensuring electrical equipment in use do not pose a serious threat of shock or fire. This program is being implemented over a two to four year period.
- PUB-3000, Chapter 18, describes the LBNL Lockout/Tagout (LOTO) Program. The primary purpose of the LOTO Program is to prevent unintended releases of hazardous energy associated with servicing, modification and maintenance of equipment. When unexpected energization (or start-up) of equipment or the release of stored energy could occur and possibly result in injury, the requirements in this document are applied to ensure that equipment is stopped, all potentially hazardous energy sources are isolated and verified, and equipment is locked out and tagged out by each worker before workers begin service or maintenance. The LOTO Program is implemented through LOTO procedures for shutting off and securing such equipment.

Comment [WW9]: Insert a link to this letter, get the letter posted in the references file.

Comment [WW10]: We should add this LBNL Electrical Equipment Acceptance Program of Sept 6, 2007 to PUB-3000 Chapter 8 as a referenced appendix.

General electrical safety requirements are augmented by the development of work authorization documents such as Activity Hazard Documents and Facility Based Authorizations which further describe electrical hazards, applicable controls, requirements for conducting hazardous experiments and operations safely, and responsibilities and training requirements for work activities.

11 Nanotechnology Safety

LBNL has safety control procedures for engineered nanomaterials safety control procedures. These were developed by the ES&H Division Industrial Hygiene Group with input from the LBNL research community and are located within the Chemical Hygiene & Safety Plan section entitled “Control Procedures for Engineered Nanomaterials”. The basis for these procedures has been codified through the Work Smart Standards Process. Since this is a relatively new area of research, there are

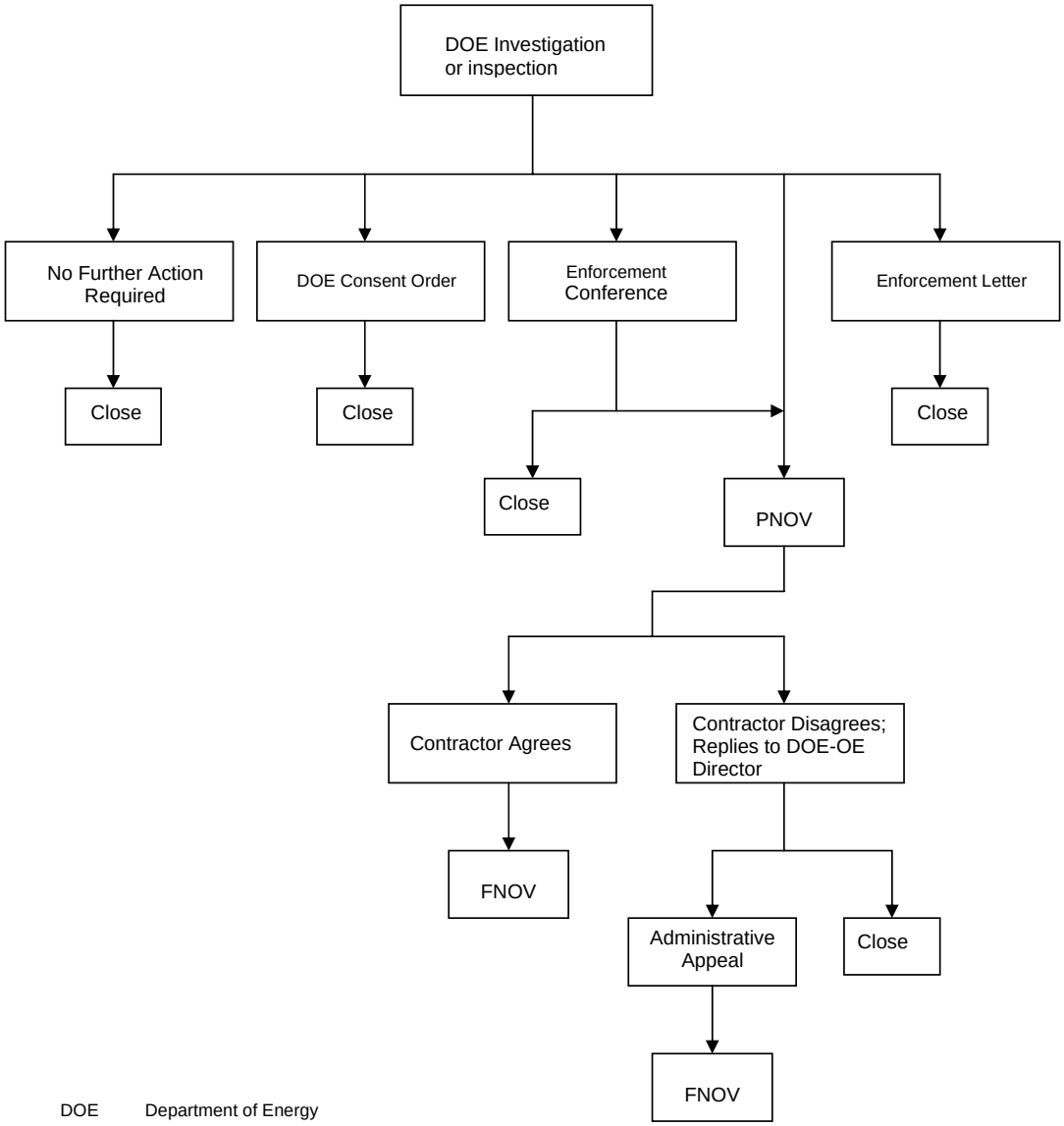
no worker safety and health regulations which specifically address the hazards associated with nanotechology. However, our procedures are based on the DOE Nanoscale Science Research Center working group guidelines.

Reference:

- PUB-5341, Chemical Hygiene Plan, Control Procedures for Engineered Nanomaterials
- DOE P 456.1, Secretarial Policy Statement on Nanoscale Safety

12 Workplace Violence Prevention (Reserved)

Appendix G 10 CFR 851 Enforcement Process Flowchart



DOE Department of Energy

DOE-OE DOE Office of Price-Anderson Enforcement

NOV Notice of Violation

PNOV Preliminary Notice of Violation

Figure G-1 The 10 CFR Enforcement Process