Computing Sciences
Integrated Safety Management Plan

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Date: 3/15/10

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Date: 3/12/10

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REVISION LOG

Date	Major/Minor	Brief Description of Revision
January 2007	Minor	• Organizational Chart updated. • Charts, graphs and supporting documentation updated to reflect RY/FY07. • Added URLs. • Added core function descriptions.
October 2008	Major	• Added ISM core functions and guiding principles. • Added links to additional Policy and Procedure documents. • Added stop work policy. • Updated Scope of Work Authorized, adding Job Hazards Analysis (JHA) and Activity Hazard Document (AHD). • Deleted specific training course requirements. • Added signature page.
March 2009	Major	• Added Revision Log • Updated Accountability and Responsibility section to incorporate most recent PUB-3000 requirements. • Updated work authorization information. • Added Employee Rights section.
March 2010	Minor	• Sec. 1: Added work locations. • Sec. 3: Modified details on walkarounds, construction contractor safety, and staff work expectations. • Sec. 5: Removed mention of Human Subjects research, updated AHD description. • Sec. 8: Updated Resource Allocation section. • Made minor housekeeping revisions throughout.

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1.0 Purpose

This Computing Sciences (CS) Integrated Safety Management (ISM) Plan provides guidance to implementation of the integrated environment, safety and health (ES&H) policies within the Computing Sciences Directorate. CS has integrated each of the five functions and seven guiding principles of Integrated Safety Management (ISM)[i] from the Lawrence Berkeley National Laboratory (LBNL) ISM Plan into its ongoing research and operations. Furthermore, CS conducts all of its operations in a manner that protects the health and safety of employees and the general public, safeguards the environment, and is consistent with applicable LBNL, university, and government agency policies and regulations. The Laboratory's ES&H policies and requirements are contained in:

PUB-201, Regulations and Procedures Manual (RPM);
PUB-3000, Health & Safety Manual, and
PUB-3140, Integrated Environment, Safety, & Health Management Plan.

This ISM Plan describes the mechanisms that are applied in the Computing Sciences Directorate to ensure proper implementation of these safety policies.

2.0 Description of Computing Sciences

The Computing Sciences Directorate mission includes computational research and the operation of national user facilities.

The head of the Computing Sciences Directorate is Associate Laboratory Director Horst Simon. The Computing Sciences Directorate is composed of two divisions, the Computational Research Division (CRD) under the direction of Horst Simon, and the National Energy Research Scientific Computing (NERSC) Division under the direction of Katherine Yelick. The Computing Sciences Directorate was created in 1996 and currently has approximately 354 employees and guests. The CS Directorate organizational structure is shown in Figure 1.

The Computational Research Division creates computational tools and techniques that enable scientific breakthroughs, by conducting applied research and development in computer science, computational science, and applied mathematics. There are no wet laboratories in either Division. CRD consists of four departments:

The Advanced Computing for Science Department seeks to allow scientists to address complex and large-scale computing and data analysis problems beyond what is possible today.

The Biological Data Management & Technology Center serves as a source of expertise in and provides support for data management and bioinformatics tool development projects at the Joint Genome Institute (JGI), for the Life Sciences and Physical Biosciences Divisions at LBNL, for Biomedical Centers at UCSF, and for other similar organizations in the Bay Area.

The High Performance Computing Research Department conducts research and development in mathematical modeling, algorithmic design, software implementation, and system architectures, and evaluates new and promising technologies.

The Energy Sciences Network (ESnet) Department manages and operates a high-speed network serving thousands of Department of Energy scientists and collaborators worldwide.

The NERSC Division mission is to accelerate the pace of scientific discovery in the Department of Energy (DOE) Office of Science community by providing high-performance computing, information, and communications services. NERSC is the principal provider of high performance computing services to DOE Office of Science programs.

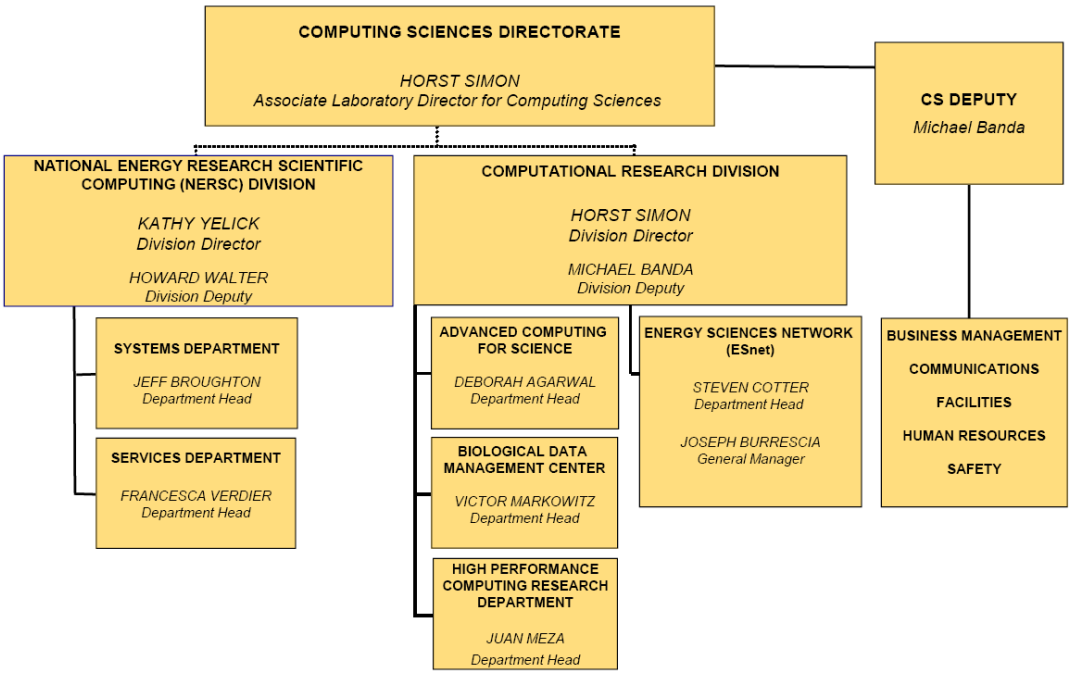

Figure 1. Computing Sciences Directorate Organization Chart

Computing Sciences offices and technical areas are located in the Building 50-complex, at the JGI, and at the Oakland Scientific Facility (OSF), B943. A majority of CRD staff is located in the B50-complex, and NERSC staff are located primarily at the OSF. Both Divisions have some staff that work remotely, both in offices and in technical areas. Drop-in offices have been established in the 50-complex and at OSF, facilitating flexible work arrangements and matrixing of employees. In addition, CRD researchers collaborate with faculty and scientists located at other institutions. These collaborators may have LBNL employee or Guest status.

3.0 Accountability and Responsibility

Division Management is responsible for ensuring implementation of ES&H policy. Safety in Computing Sciences flows from the Directors of the two Divisions to their direct reports, and from them down to first line supervisors. Division Management ensures that roles and responsibilities for ensuring compliance with ES&H requirements within CS are clearly defined in staff position descriptions and performance review documents.

Line Management includes Department Heads, Group Leads, and other supervisors. Line Management is responsible for protection of the public, employees, and the environment. More specifically, Computing Science line managers are responsible for integrating ES&H into work practices and for ensuring active communication up and down the management line and with the workforce. Line management is responsible for reviewing the ES&H hazards and controls for their employees, guests, contractors, visitors, students, and matrixed employees, and ensuring that the required training is completed and controls are implemented.

Supervisors conduct biannual safety walkarounds to review the safety of their employees and workspaces, documenting their observations and ensuring that unsafe conditions are corrected promptly. One of the walkarounds may be conducted in conjunction with an annual wall-to-wall review by Division management. Supervisors participate in accident investigations to identify accident causes and corrective actions. They ensure that corrective actions identified in walkarounds and accident investigations are entered into the Corrective Action Tracking System (CATS). Management proactively promotes and encourages safety awareness in the workplace.

Work leads may be authorized by line management to direct, train, and/or oversee the work and activities of one or more workers.

Area Safety Leaders are responsible for overall safety within technical areas. They, or their designees, review and update the technical area descriptions in the Hazard Management System. They ensure that the appropriate personal protective equipment has been determined, and that this is posted with other required information at each entrance to their technical areas.

A Division Safety Coordinator (DSC) serves as a point of contact for all Division staff regarding the implementation and interpretation of the Lab's ES&H policies. The DSC coordinates and manages required safety programs and documentation. The DSC works with CRD Department representatives as necessary on safety issues. A NERSC safety representative supports the DSC and promotes ES&H awareness, communication, safe work practices, and compliance within the NERSC Division.

Employees, participating guests, contractors, vendors, and visitors are responsible for knowing and following the ES&H requirements that apply to their work. They are expected to work safely, and to cooperate and contribute to the CS Directorate's ES&H activities as appropriate. They must consult with qualified specialists (e.g., the CS DSC and/or Environmental Health and Safety (EH&S) Division Liaison, or appropriate EH&S Subject Matter Expert staff) to resolve any questions about ES&H activities.

All Berkeley Lab employees, contractors, and participating guests are responsible for bringing safety and health concerns promptly to the attention of the appropriate manager, supervisor, or work lead 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 the Environment, Health, and Safety Division. In addition, all Berkeley Lab employees, contractors, and participating guests are responsible for stopping work activities considered to be an imminent danger. An "imminent danger" is defined as any condition or practice that

could reasonably be expected to cause death or serious injury, or environmental harm. The Laboratory's Stop Work Policy can be found in PUB-3000 at: http://www.lbl.gov/ehs/pub3000/CH01.html#sec15.

Subcontractors are required to comply with ES&H requirements. CS managers are responsible for the safe performance of work conducted on-site by subcontractors. Prior to the start of work, the responsible CS manager reviews the subcontractor's statement of work to identify any potential hazards and communicates these to the contractor. Subcontractor employees issued an LBNL badge for more than 30 consecutive days are required to complete an individual Job Hazards Analysis and receive the necessary safety training before starting work, or they are directly supervised by the responsible manager. When non-construction subcontractor work is hands-on and is conducted on-site, the work hazards are documented in a Subcontractor Job Hazards Analysis. Construction work hazards are addressed in contractor Safety Checklists.

Matrixed employees' supervisors from the home divisions or departments retain all ES&H responsibilities pertaining to the matrixed employees.

Students are afforded the same protections and assume the same obligations as any LBNL employee or guest for safe work practices. Before student work begins, supervisors are responsible for assuring that each student possesses a thorough understanding of safe work practices. Supervisors are responsible for assuring that each student completes a JHA, EHS0010 (Introduction to ES&H at LBNL) training, and performs work safely.

Offsite work is subject to safety requirements and review as applicable, determined in each case by completion of the JHA and consideration of the type of work. CS has a number of unusual work arrangements. Some employees work in permanent offices at other locations or institutions; some employees or guests may be present onsite only once a year for a week or month or other length of time. The Computational Research Division's ESnet employees routinely provide on-site support at computational facilities around the United States.

Telecommuting is addressed on a case-by-case basis, and may be permitted at the discretion of line management, when appropriate.

4.0 Safety Committee

The CS Directorate maintains an ES&H (Safety) Committee, consisting of representatives from Directorate Management, the Safety Advisory Committee (SAC) representative, the Division Safety Coordinator, CRD Division Departments, the NERSC Safety Representative, and the EH&S Division Liaison. The Safety Committee is chaired by the Division Safety Coordinator.

The CS Safety Committee's responsibilities include these functions:

- review, maintain and implement the CS ISM Plan
- analyze accident and injury data
- promote ES&H awareness and training
- review the need for specialized training
- participate in planning for MESH reviews
- develop metrics and analyze pertinent data

- advise the Associate Laboratory Director on ES&H issues.

Members of the Safety Committee participate in the preparation of Self-Assessment Reports for the Associate Laboratory Director. These reports include an evaluation of how well this Directorate ISM Plan is implemented. The Safety Committee also assures that Computing Sciences works to improve the effectiveness of the ES&H program through the dissemination of lessons learned and other appropriate mechanisms. Division Directors attend at least one regular Committee meeting each year.

5.0 Scope of Work Authorized

The majority of Computing Sciences employees work in an office environment with intensive computer use. Other groups of staff also perform work in computer rooms or other technical areas and require training appropriate to their activities in these areas. No personal protective equipment (PPE) is required for entry into computer rooms. Computing Sciences Divisions utilize the Laboratory JHA process to apply appropriate controls to the hazards of staff member tasks. CS implements task-based JHAs when necessary for limited-term work.

Formal authorizations requiring ES&H review are implemented as required by Laboratory policy. Activity Hazard Documents are being drafted to control the electrical hazards in two work activities. Permits, including lockout/tagout and live electrical work permits, are used as necessary to control hazards of employees and contractors.

Supervisors will review their employees' activities annually or when work changes, and will obtain required approvals for potentially hazardous or regulated work as specified in Chapter 6 of LBNL/PUB-3000. Hazards are inventoried and reviewed annually using the Hazard Management System database.

6.0 Qualification and Training

Supervisors assure that CS staff and long-term guests complete the JHA process within 30 days of their start date, and possess the requisite qualifications to function safely. Until such qualifications have been met, individuals will perform work only under the supervision of a qualified employee. The LBNL JHA and training database are mechanisms used to record performance and training requirements and their completion. CS may develop additional training mechanisms including on-the-job training (OJT) and facility-specific training for work in CS computer rooms. Qualifications include skills, work experience, knowledge, training, and certifications required by regulations, by Laboratory policy, or Division management. Contract labor employees, guests, and students who will be at LBNL for more than 30 days are subject to the same ES&H requirements for qualification and training as career employees performing similar tasks.

CS staff qualifications and training are reviewed as part of the self-assessment program to ensure that skills are commensurate with technical needs and workplace hazards.

7.0 Employee Rights

Employees or former employees may file an ES&H concern with their immediate supervisor, higher level managers, Director of the EH&S Division, or the local DOE office. Concerns

may be submitted by calling the Berkeley Lab Employee Hotline (800) 403-4744. This toll free number is available 24 hours every day and is operated by a third-party vendor for confidentiality and anonymity if so desired by the caller. Persons reporting improper activities are fully protected by the law and Lab policy against retaliation. Under 10 CFR 708, employees also may file their concerns (not limited to ES&H) with the DOE Chicago Office Employee Concerns Program Manager at (630) 252-2299. The LBNL HR Web site also has information regarding whistleblower policy, and provides a number of 24-hour hotlines of potential use to Lab employees.

8.0 Resource Allocation

Supervisors will incorporate appropriate resource allocation to address ES&H concerns in all research and operations proposals. The allocation of funds is particularly important in addressing ergonomic issues but may also be required to cover the cost of safety equipment, permits, and training.

To facilitate implementation and execution of this ES&H Plan, the following Directorate resources are made available:

1.00 FTE, Directorate ES&H Coordinator
0.50 FTE, Administrative Support
0.20 FTE, Facility Manager
0.20 FTE, OSF Building Manager
0.05 FTE, Directorate ES&H Committee Member, SAC Representative

The following resources are made available by the EH&S Division. They are available to assist supervisors, the ES&H committee, and staff in general with any aspects of the implementation of this program.

0.20 FTE, EH&S Division Liaison
0.05 FTE, Industrial Hygiene Support (indoor air quality, noise, etc.)
0.05 FTE, Electrical Safety
0.01 FTE, Laser Safety

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[i] The five functions of Integrated Safety Management (ISM) are:

- Define the scope of work;
- Identify the hazards of the work;
- Develop and implement controls for the hazards;
- Perform the work as authorized; and
- Maintain continuous improvement from regular feedback.

These five ISM core functions are sustained by applying the seven guiding principles of ISM:

- Line management responsibility and accountability for ES&H;
- Clear ES&H roles and responsibilities for managers and staff;
- Competency commensurate with responsibilities;
- An on-going balance between safety on one hand and research and operational priorities on the other;
- Working within standards and requirements;
- Hazard controls tailored to the work; and
- Authorization basis established for the work.