
SAFETY REVIEW COMMITTEE

ANNUAL MEETING

February 2007 – February 2008

February 4, 2008

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SAFETY REVIEW COMMITTEE

NAME	Position	Group
Banda, Michael J.	Representative	Computing Sciences Directorate
Bello, Madelyn	Advisor	Human Resources
Blair, Steven A.	Representative	Facilities Division
Blodgett, Paul M.	Representative	Environment, Health and Safety Division
Cork, Carl W.	Representative	Physical Biosciences Division
Dubon Jr., Oscar D.	Representative	Materials Sciences Division
Francino Puget, Maria Pilar	Representative	Genomics Division
Kadel, Richard W.	Representative	Physics Division
Leitner, Daniela	Representative	Nuclear Science Division
Li, Derun	Representative	Accelerator & Fusion Research Division
Lucas, Donald	Representative	Environmental Energy Technologies Division
	Chairperson	Safety Review Committee
Lukens Jr., Wayne W.	Representative	Chemical Sciences Division
Martin, Michael C	Representative	Advanced Light Source Division
Nakagawa, Seiji	Representative	Earth Sciences Division
Smith, Linda K.	Representative	Information Technology Division
Taylor, Scott E.	Representative	Life Sciences Division
Thomas, Patricia M.	Secretary	Safety Review Committee
Twohey, Daniel E.	Representative	Directorate/Operations
Wong, Weyland	Representative	Engineering Division

SUBCOMMITTEES

NAME	Position	Group
Kritscher, A Michael	Chairperson	Mechanical Safety Subcommittee
Mueller, Robert	Chairperson	Electrical Safety Subcommittee
Schoenlein, Robert W.	Chairperson	Laser Safety Subcommittee
Sexson, Janice	Chairperson	Traffic and Pedestrian Safety Subcommittee
Smith, Linda K.	Chairperson	Emergency Preparedness Safety Subcommittee
Wong, Weyland	Chairperson	Division Safety Coordinators Subcommittee

SAFETY REVIEW COMMITTEE

Charter

Function

The Safety Review Committee (SRC) performs research for and makes recommendations to the Laboratory Director on the development and implementation of Environment, Safety, & Health (ES&H) policy, guidelines, codes, and regulatory interpretation. It conducts reviews of special safety problems and provides recommendations for possible solutions to the Laboratory Director and/or the ESH Division. The SRC also provides advice and counsel to the Associate Laboratory Director for Operations by reviewing appeals from the Laboratory Divisions when any Division and the EHS Division do not agree on the interpretation or application of criteria, rules or procedures. Such advice and counsel may include options for a resolution.

In addition, the SRC chair, in cooperation with the Office of Contract Assurance, is responsible for scheduling and conducting the portion of institutional self-assessment known as Management of Environment, Safety & Health (MESH) reviews. These reviews are designed to ensure management systems consistent with Integrated Safety Management (ISM) are in place in all Laboratory Divisions and that these systems are leading to effective implementation of the Laboratory's ES&H program. MESH reviews are normally triennial by Division and are conducted by an SRC sub-committee. Depending on the MESH review results and the Division response, the SRC shall have the option to recommend changing the interval by one year. All members of the SRC are expected to serve on MESH sub-committees.

To properly execute its responsibilities under this charter, the SRC Chair may appoint expert sub-committees to address specific health and safety matters. Such sub-committees may become long standing expert sub-committees, or they may be of short duration, depending upon the technical support requirement.

Membership/Composition

The Laboratory Director appoints the SRC Chair. SRC membership includes a representative from every Laboratory Division.

Division Directors and Department Heads nominate members of their organizations to the Chair and the Laboratory Director formally appoints them to the SRC. The EHS Division Director or Division Deputy will also attend SRC meetings as resources for the committee.

Appointments are normally for three-year terms that can be renewed once. In addition to SRC members, the Chair may invite (based on SRC agenda) the following advisors:

- Chair of Human Subjects Committee
- Chair of Animal Welfare and Research Committee
- Chair of Radiation Safety Committee

- Chair of Biosafety Committee
- Laboratory Environmental Counsel

Membership Qualifications

The SRC is designed to be a committee of peers involved in the research and development activities of the Laboratory. In research-oriented divisions, members should be drawn from the scientific staff; participation by active experimental scientists is important to the functioning of the SRC. There are no specific prescribed qualifications for SRC members in terms of their position, experience, and training at the Laboratory. However, since the SRC is involved in determining Laboratory policy as described above, individuals who can effectively represent their Divisions should be nominated.

SRC members are expected to:

- Possess an understanding of the 5 Core Functions and 7 Guiding Principles of Integrated Safety Management.
- Communicate regularly with senior Division management and other Division personnel as needed.
- Possess communications skills to comment, suggest, recommend, revise, advise, and influence the Laboratory's approaches, methods, documents, and practices to continuously improve the Laboratory's safety programs.
- Develop an understanding of PUB 3000 and related documents, and the processes for revising these documents.

Meeting Schedule

Meetings will be held as necessary, but at least every two months. When members are unable to attend, substitutes may be designated to attend specific meetings. If a member does not attend at least four meetings throughout the calendar year, the SRC Chair will consult the member's Division Director or Department Head to ask that a replacement be nominated. The SRC chair will designate a recording secretary. Minutes shall be recorded for every meeting; and once a year, the committee will submit a written and oral report of activities to the Director.

Provision for Amendment

The Chair shall submit to the Laboratory Director any recommendations for the amendment of this charter.

SAFETY REVIEW COMMITTEE

Highlights for February 2007 – January 2008

MESH Reviews

Four Management of Environment, Safety, and Health (MESH) Reviews were completed in 2007: Engineering; Nuclear Science; Life Sciences; and Environment, Health and Safety (See MESH Overview and Summary).

PUB-3000 Changes

A primary activity of the Safety Review Committee this year has been review of proposed changes to PUB-3000 in response to the Corrective Action Plan Department of Energy safety regulation, 10 CFR 851, and the Corrective Action Plan. Chapters reviewed in 2007 included:

- Chapter 1 – General Policy and Responsibilities
- Chapter 6 – Safe Work Authorizations
- Chapter 16 – Lasers
- Chapter 17 – Ergonomics
- Chapter 27 – Cranes, Hoisting and Rigging
- Chapter 28 – Forklifts and Other Powered Industrial Trucks
- Chapter 32 – Job Hazards Analysis

Other Issues

Some other areas discussed by the SRC in 2007 and early 2008 include:

- Institutional Integrated Safety Management Plan
- Corrective Action Plan status
- Manager, supervisor, and work lead responsibilities
- Safety walkaround program
- Ergonomics program
- Job Hazards Analysis pilot program
- EH&S Technical Assurance program
- Site access, visitor and guest safety
- Seismic safety
- Inspection of electrical equipment
- ES&H policy statement
- Welding policy
- Emergency planning
- Medical surveillance program
- Subcontractor safety

Plans for 2008

Pending direction from the ISM Board and the new SRC Chair, MESH reviews may be conducted for the following divisions: Accelerator & Fusion Research, Computing Sciences, Directorate / Operations, Earth Sciences, Facilities, Genomics, and Materials Sciences. Other issues where the SRC anticipates active involvement include: subcontractor safety, electrical equipment inspection, welding, and Job Hazards Analysis.

SUBCOMMITTEE REPORTS

Electrical Safety

Members:

Robert S. Mueller, Chair (ALS, Engineering)
Michael J. Bell (ALS, Engineering)
Alan Biocca (ALS, Engineering)
Robert A. Candelario (Engineering)
Dennis G. Collins (NSD, Engineering)
Lawrence Domansky (Facilities)
Michael P. Fahmie (ALS, Engineering)
Keith Gershon (EHS)
Tim Kuneli (ALS, Engineering)
William D. Mattson (ALS, Facilities)
James W. Murphy (Facilities)
Dennis A. Nielsen (Facilities)
Arthur L. Ritchie (ALS)
James E. Severns (MSD)

The Electrical Safety Committee (ESC) held regular monthly meetings to review DOE and LBNL electrical safety incidents and problems, especially as they relate to LBNL programs. Many members participate in DOE-sponsored conferences on electrical safety.

The ESC, working with EH&S, has updated PUB3000, Chapter 18 LOTO, lockout-tagout safety.

Three members of the ESC attended the DOE R&D Electrical Safety Conference in Albuquerque, New Mexico this summer (2007). Much work was accomplished on updating the DOE Electrical Safety Handbook, DOE-HDBK-1092, a DOE-wide electrical safety handbook intended to unify electrical safety practices throughout the DOE community. Most of the progress centered on work controls and hazard classification for R&D electrical work under NFPA 70E (*Standard 70E, Electrical Safety in the Workplace*, of the National Fire Protection Association). After DOE approval of the updated handbook we intend to roll the new R&D electrical safety guidelines into PUB3000, Chapter 8.

Recognizing the inherent hazard and the frequent use of heat tapes for vacuum vessel bakeouts, the ESC has gathered together the scattered regulations and requirements into one short document for ease of use by our scientific and technical staff and placed it into PUB3000 Chapter 8. There will be a "Today At Berkeley Lab" article about this new document early in 2008.

Emergency Preparedness

Members:

Linda Smith, Chair (IT)

Steve Black (Facilities)

Jim Floyd (ALS)

Mary Gross (BSO)

Sara Ferrandini (UCPD)

Guy Kelley (EETD)

Aisha Knowles (ACFD)

Tony Linard (Life Sciences)

Steve Lowe (NERSC-OSF)

Lunsford, Dan (EH&S)

Vangie Peterson (Physical Biosciences)

Richard Kadel (Physics)

Pastor-Cohen, Genevieve (EH&S)

Will Thur (ALS)

Rocky Saunders, Staff (EH&S)

The Emergency Preparedness Committee (EPC) meetings are held as necessary, but at least twice a year. Committee members reviewed proposed changes and selected members participated in emergency training, exercises and preparedness projects throughout the year. The committee and program highlights for FY 2007 follow.

- Participated in 5 Actual Events:
 - 1 - White Powder Incident (10/23/06)
 - 4 - Internal Evaluated False Alarms: Building 90 Evacuation (3/7/07); Building 50 Evacuation, and two Building 6 Evacuations (5/9/07) and (6/5/07)
- Planned and Conducted 6 Exercises:
 - DOE No-Notice Exercise (12/8/06) – Evaluated Exercise
 - Hazardous Waste Transportation Exercise HWHF (12/20/06)
 - Bio Lab II Exercise (1/4/07)
 - Hazardous Materials Spill Exercise at HWHF (02/21/07)
 - Emergency Operations Center (EOC) Table Top Exercise (06/06/07) – Evaluated Exercise
 - EOC Table Top Exercise (9/14/07)
- Planned and Conducted 36 Drills:
 - 12 Initial Assessment Team Monthly drills
 - 12 Building Emergency Radio Monthly drills
 - Helicopter Evacuation Drill (06/05/07)
 - Annual Hill Wide Evacuation Drill (06/06/07)
 - 10 INMAR Satellite Phone Tests
- Participated in a DOE external evaluation of the Emergency Management Program by Mark Robinson, Oak Ridge Organization (1/23/07)
- Planned and conducted quarterly Building Emergency Team Seminars
- Planned and conducted a Week of Emergency Preparedness at the Lab (06/04-08/07)
- Sponsored emergency preparedness lectures (06/07/07 and 06/08/07)
- Participated in external Emergency Operation Center exercises including the Department of Homeland Security funded Golden Guardian Exercise (November 15, 2006), Alameda

County Annual Exercise (November 30, 2006), and the Annual Emergency Operations Center (EOC) exercise at the Stanford Linear Accelerator Center.

- Expanded EOC Membership towards the goal of having representation from another science division
- Directed periodic articles on Emergency Preparedness topics appeared in the Today At Berkeley Lab.
- Improved three emergency related training courses; Building Managers Orientation (EHS 156), Building Emergency Team Orientation (EHS 154), and Earthquake and Wildland Fire training (EHS 135).
- Developed and implemented core training for EOC staff.
- Assisted Sandi National Laboratory in a self-assessment process.
- Produced regular reports to DOE and EHS Division Director
- Developed and implemented Senior Executive emergency training (EOC 003).
- Initiated the implementation of DOE Order 151.1c to develop a comprehensive emergency management function at the LBNL.
- Emergency Operations Center technology improvements included installation of a new electronic emergency call down system, electronic “smart” white boards, and data communications.

Laser Safety

Committee Members:

Joel Ager	MSD
Ken Barat	EHS, LBNL (Laser Safety Officer)
Paul Blodgett	EHS
Ernie Glover	ALS
Marc Hertlein	CSD
Richard Kadel	PHNSD
Don Lucas	EETD
Xianglei Mao	EETD
Larry McLouth	EHS
Robert Schoenlein	MSD (chair)
Eddie Ciprazo	UCB
Neil Landau	DOE/BSO

The SRC Laser Safety Subcommittee (LSC) met bi-monthly during 2007, with the LBNL Laser Safety Officer, EHS management, and a Berkeley Site Office (BSO) representative in attendance.

Major issues addressed in 2007:

- Re-write of the PUB 3000 Laser Safety Chapter (Ch. 16) initiated by the LBNL Laser Safety Officer (LSO). A sub-set of the LSC made substantial contributions to the new chapter, and the entire subcommittee provided comments and feedback. The new chapter was approved by the SRC.
- The LSO in consultation with the LSC developed a number of Laser Safety Protocols serving two purposes:
 - (i) clarify LBNL laser safety policy in areas not addressed by the ANSI standard, or in areas where the ANSI standard provides significant latitude.
 - (ii) document any LBNL laser safety policies that deviate from the ANSI recommendation.
- The following protocols were evaluated by the Laser Safety Subcommittee and recommended to the SRC for approval:
 - Class I Laser Products
 - Periodic Check of Laser Interlocks
 - Maser Key Switch Requirements
 - Audible Warning Signal Requirements
 - Warning Sign Style
 - Remote Connector Requirements
 - Emergency Stop Button Requirements
 - Nominal Hazard Boundary Zone - Definition
 - Interlocks on Removable Protective Housings
 - Beam Stop or Attenuator for Class 4 Lasers
 - Standard Operating Procedures (AHD)

- Developed a new policy for laser alignment eyewear addressing: (i) definition of ‘alignment eyewear’, (ii) criteria for determining the appropriate O.D, and for evaluating the conditions under which such eyewear might be used, and (iii) approval procedure and documentation.
- Alignment eyewear policy recommended by the LSC for approval by the SRC and incorporation into Pub 3000, Ch. 16.

Mechanical Safety

Members:

Michael Kritscher, Chair (Engineering): Non-code pressure vessels
Fred Angliss (Facilities): Seismic and high consequence/high value lifts and moves
Michael Dong (Facilities): Ventilation
Yoichi Kajiyama (Engineering): ASME Code pressure vessels
Derek Shuman (Engineering): High consequence/high value lifts and moves

The committee reviews Engineering and Safety notes in the areas of pressure vessel, seismic, ventilation, and lifting fixture safety. The committee may also review changes to PUB-3000 and other documents that would benefit from the group's technical expertise. The committee obtains its assignments from the SRC, the Engineering Division Director, and by request from various researchers.

Activities of the Mechanical Safety Subcommittee (MSS) for the year 2008 included the following:

- Committee members worked on a number of tasks from a variety of sources. Groups assisted by the MSS include: Nuclear Science, Earth Sciences, Mechanical Engineering and Facilities. The assistance supplied ranged from relatively simple engineering note review, such as the HIF Bunching Module Pressure Vessel safety note, to more involved assistance, such as creating an ANSYS model for the Acoustic Resonance High-Pressure Nitrogen Gas confining cell.
- The MSS had a special meeting to review an upcoming change in the state building codes for 2008 that has the potential for directly affecting the way we currently address seismic anchoring in many locations and significantly at the Advanced Light Source. Information was gathered to confirm that the changes would not affect the availability of the Hilti HDI seismic anchors, most commonly used in building 6 (ALS) and elsewhere at the Lab.
- The committee assisted the development of a laboratory welding policy, which will be the foundation of a new PUB-3000 chapter on welding safety. The chapter is currently being developed with the intention to have the SRC review it in early 2008.

Safety Coordinators

Members:

Weyland Wong, Chair (Engineering)
Steven Lidia and Patricia Thomas (AFRD)
Jim Floyd and Tennessee Gock (ALS)
Jerome Bucher (Chemical Sciences)
John Hutchings and William Iles (Computing Sciences Directorate)
Betsy Reyes (DIR/OPD/CFO/HR)
Jil Geller (Earth Sciences)
Marshall Granados (Engineering)
Richard DeBusk and Michael Ruggieri (EHS)
Guy Kelley and Robin Mitchell (EETD)
Janice Sexson (Facilities)
Stephen Franaszek (Genomics JGI)
Tony Linard and Scott Taylor (Life Sciences)
Ann Tomaselli (Information Technology)
Rick Kelly and Paul Johnson (Material Sciences)
Marty White (Nuclear Sciences and Physics) - NEW
Nicholas Sauter (Physical Biosciences)

The safety coordinators meet monthly with EH&S management, EH&S liaisons, and BSO in attendance.

The coordinators review and provide feedback and recommendations on proposed changes in the EH&S systems, processes and procedures. This year this included:

- PUB-3000 Division Safety Coordinator Roles and Responsibilities were revised and updated to include basic qualifications and a continuous improvement plan;
- Roll out and facilitating the training of new EHS0027 “Performing an effective safety walk-around” course within their divisions;
- Ergo Program feedback and partnering including the reinstating of the Ergo Display Center and participation in the Ergo Advocate Program;
- LBNL ISMS Corrective Action Plan participation, support and responses;
- CATS database changes, the Issues Management structure and improved integration with the Facilities Maximo and Work Requests systems;
- Transition replacement of the Hazards Equipment Authorization Review (HEAR) database with the new Hazards Management System (HMS); and
- Continued EH&S JHQ, training and database feedback and improvement opportunities including JHQ compliance vs. JHQ completion.

The Division Safety Coordinators (DSC) were praised by the McCallum Turner Review for their proactive and reactive participation in safety at the Laboratory. As an action, the DSC program also clearly demonstrated (via a Division survey) it’s effective to support the safety initiatives of the Laboratory. Most divisions have designated backup DSCs to further ensure a safety resource is always available. Safety best practices and training continue to be explored and implemented.

Traffic and Pedestrian Safety

Members:

Janice Sexson, Chair (Facilities Division Safety Coordinator)
Steve Blair (Facilities)
Tamara Brown (Facilities transportation)
Richard DeBusk (EHS)
Steve Greenberg (Bicycle Coalition)
Dan Lunsford (EHS)
Jack Salazar (EHS)

The Traffic Safety Committee continues to meet bi-monthly.

Issues addressed during 2007:

- Replace yield sign across from Bldg. 50 with stop sign (pending funding).
- Relocate bus stop for Bldg. 26 (still pending since 2005).
- Discussion on adding a stop sign at the end of Bldg. 48 towards Bldg. 77. (Committee agreed to not add stop sign).
- Bldg. 48 bus stop location was revised after careful consideration.
- Requested that security stop bicycle riders at gate for not wearing helmets.
- Resolved to add sign at Bldg. 31 “Caution Trucks Entering Roadway” (pending).
- Received permission from UC to install lights and or signs at Grizzly Gate (still pending funding since 2006).
- Discussed lack of walkway between Bldg. 76 & Bldg. 75 (pending solution).
- Traffic and pedestrian safety articles in “Today At Berkeley Lab”.
- Share the Road event held to raise awareness during the 30th Annual Run Around.
- Prizes were given to raffle ticket winners for answering traffic related questions.
- Investigated with RAD group to see if a walkway could be put in between Bldg. 75B and the RAD building (RAD levels were too high for this walkway).
- Repair of Bay Lot stop sign (completed).
- Met with forklift representative drivers to discuss pulling over when possible to let cars go around.
- Temporary barricades are placed on one side of Bldg. 67 to allow larger trucks access. (Permanent striping is pending funding).
- Resolved cell phone issues with bus drivers who agreed and signed statement that they will not use phones while driving (completed).

MANAGEMENT of ES&H (MESH) REVIEWS

2007 SRC MESH Review Teams

Environment, Health and Safety

Daniela Leitner, Nuclear Science, Team Leader
Seiji Nakagawa, Earth Sciences
Scott Taylor, Life Sciences
Melanie Gravois, Facilitator
Neil Landau, DOE Observer

Engineering

Linda Smith, Information Technology, Team Leader
Steven Blair, Facilities
Wayne Lukens, Jr., Chemical Sciences
Michelle Flynn, Facilitator
Carol Ingram, DOE Observer

Life Sciences

Paul Blodgett, Environment, Health and Safety; Team Leader
Carl Cork, Physical Biosciences
Maria Pilar Francino Puget, Genomics
Michelle Flynn, Facilitator
Hattie Carwell, DOE Observer

Nuclear Science

Michael Martin, Advanced Light Source, Team Leader
Richard Kadel, Physics
Derun Li, Accelerator & Fusion Research
John Chernowski, Facilitator
Neil Landau, DOE Observer

MANAGEMENT of ES&H (MESH) REVIEWS

2007 Overview

The Safety Review Committee (SRC) conducts reviews of each division's management of ES&H in operations and/or research, focusing on the implementation and effectiveness of each division's Integrated Safety Management (ISM) Plan. For FY07, the SRC conducted MESH reviews in the following divisions:

Division	Review Date	Noteworthy Practices	Observations	Concerns	TRC*
Environment, Health and Safety	July 2007	3	4	2	2
Engineering	July 2007	6	5	2	2
Life Sciences	August 2007	4	7	3	4
Nuclear Sciences	July 2007	5	6	3	2

*Total Recordable Cases, FY 07

The FY07 MESH reviews concluded that the assessed divisions provide a safe workplace for employees and guests. All divisions are following their ISM Plans and are generally proactive in managing safety. Noteworthy practices and opportunities for improvements for each of the divisions are described in the MESH Summary.

The most common **noteworthy practices** were improvements in the areas of communications and training. Examples included:

- *Communications:* Division Director chairing safety committee, regular communications between employees and supervisors, safety bulletins, Monday Morning Meetings, posted instructions in work areas.
- *Training:* development of division-specific safety courses, encouraging employees to complete JHQs and training, supervisor assistance in completing JHQs, new employee orientation

The most common **opportunities for improvement** were in the areas of training, communications, and ISM Plan implementation Examples included:

- *Training:* JHQs and training not completed, on-the-job training not documented, outdated JHQs and training, new Building Manager responsibilities not covered, JHQ requirements for guests not clear, fire extinguisher course not tailored to specific needs.
- *Communications:* lessons learned not fully communicated, safety committee meeting infrequently, insufficient communication between groups
- *ISM Plan implementation:* SAA checklists not completed, CATS not being entered or closed, institutional hazards database not being used, project review forms not completed, other specific lapses in compliance noted by review teams.

FY07 SRC MESH Review Summary

Noteworthy Practices and Opportunities for Improvement

Division	Noteworthy Practices	Opportunities for Improvement
Environment, Health and Safety	<ul style="list-style-type: none"> • Ergonomics safety has been identified as a key safety concern of the division, and is addressed in most DSC meetings. To improve awareness and safety in this area, several steps have been implemented. Eighty-six ergonomic evaluations have been performed for staff, and actions necessary to resolve ergonomic issues have been addressed in a timely manner. • The Division Director recognized that communication between group leaders and senior management is an area in need of improvement, and, as a result, now chairs the EHS Division Safety Committee to enhance safety communication. • Based on interviews with group leaders, supervisors, and general employees, regular communication flows up and down the chain of command within groups. Supervisors and employees regularly meet one-on-one, and employees talk openly on a variety of matters with their supervisors. 	<ul style="list-style-type: none"> • Concern: There were some instances where certain requirements outlined in the EHS ISM Plan are not being met. These include Completion and/or update of JHQs and completion of required training. 46 out of 188 EHS employees, guests and contractors who are not within the 90-day grace period of initial employment date, have never taken and/or annually reviewed/updated their JHQs. 122 out of 1428 required training courses have not been taken by EHS personnel. • Concern: There are two EHS Division Safety Coordinators both of which dedicate a total of approximately 30% of time to the EHS Coordinator function for the Division and have other job responsibilities that appear to have precedence over the Coordinator role. Based on conversations with Group Leaders, the direct support provided by the Division Safety Coordinators is less than adequate. • Observation: There were some instances where certain requirements outlined in the EHS ISM Plan are not being met. These include use of the SAA checklist for documenting quarterly inspections of Satellite Accumulation Areas, annual update of the HEAR database for some locations, and resolution of CATS entries in a timely manner. • Observation: While budget and staffing levels have increased, there still may not be sufficient resources to perform work safely, efficiently, and within the controls. EHS management has requested additional resources from senior Lab management. • Observation: It is difficult for the EHS Division to separate EHS-specific issues from ES&H functional areas that may be

Division	Noteworthy Practices	Opportunities for Improvement
		<p>the responsibility of another Division or the Institution. In some instances, the EHS Division puts greater priority on Institutional ES&H issues as opposed to EHS Division-specific issues. EHS management has started to address this concern by focusing its Division Safety Committee meetings on EHS-specific safety concerns and issues.</p> <ul style="list-style-type: none"> • Observation: Safety communication, such as sharing of near misses and safety practices, across groups is less-than-adequate. During new policy/procedure development and/or when changes are made that may impact an interfacing EHS organization, the interfacing organization is typically not communicated with prior to the addition of, or change to, such policy/procedure.

Division	Noteworthy Practices	Opportunities for Improvement
<p>Engineering</p>	<ul style="list-style-type: none"> • Engineering has committed resources for two safety coordinators. Depth in this critical function enhances their ability to perform root cause investigations on injuries and adverse ES&H events, and develop and implement new safety initiatives. The division is also able to perform long-term succession planning to the veteran safety coordinator. • The division developed an on-line ISM training course, required for all employees. They translated the five core functions of ISM to language pertinent to routine staff activities, with a focus on personal responsibility. Engineering designed and produced associated ISM badges for employees to carry. • Engineering has communicated Basic Safety Expectations to all its employees. The first is to maintain a current JHQ, updating it at least annually or any time job hazards, assignments, or supervision changes. The second expectation is to complete and maintain current required ES&H training. The division has taken measures to assure employees remain vigilant in meeting them. The division posts overdue JHQ and training completion reports in the directorate lobby, and when training completion is overdue, supervisors and employees must meet with the Division Director to explain the circumstances. • New employees take the JHQ along with their supervisor, which ensures that new employees will take the classes that they actually need and do not take unnecessary classes. • Division management expressed concern over their staff's reluctance to report safety issues if they involve the customer. One approach the Division Director has taken to address this concern is assuming responsibility for ORPS reporting of adverse events involving his staff while working under the direction of partner divisions. Both division safety coordinators have comprehensive root cause analysis training. 	<ul style="list-style-type: none"> • Concern: Engineering has Memoranda of Understanding (MOU) for safety responsibilities with all but one of its partner divisions; however, these MOUs do not specify the safety responsibilities for their respective supervisors and employees. • Concern: As permitted by the RPM, key areas of responsibility are negotiable between the home and host organizations: personal protective equipment; administrative controls, including AHDs, RWAs, etc.; and engineering controls for health and safety. The MESH Team identified cases where Engineering did not fully address these negotiable responsibilities with partner divisions. • Observation: Several supervisors in the division have an inordinately large number of direct reports. In most of these cases, the supervisors' staff works in multiple locations and for varying partner divisions. Such a broad span of control for some supervisors may lead to gaps in managing ES&H for staff. Under impending Lab policy, Engineering will need to formally identify work leads and ensure they receive appropriate training. • Observation: Application of RPM 7.01D to hazard identification and risk analysis without supporting documentation, such as an MOU explicitly assigning ES&H roles, is insufficient. • Observation: Engineering division carries out a wide variety of operations that are hazardous but fall short of requiring an AHD. In these cases, on-the-job training (OJT) in Engineering is informal and undocumented. Documentation of this OJT will be required under the JHA program. • Observation: The Central Shops Manager reported a case where a recent hire identified storage of metal plates as a hazard to those working in the vicinity. When questioned by the MESH team why someone in the shop has not

Division	Noteworthy Practices	Opportunities for Improvement
	<ul style="list-style-type: none"> • Following an ORPS-reportable electrical near miss incident, Engineering identified the cause of the event as insufficient knowledge of the mechanical technician to analyze and mitigate the electrical hazards. In response, Engineering worked with EH&S to develop ENG1001 Electrical Safety - What Everyone Needs To Know. The objective of this brief web-based training is to assure a common baseline understanding for all Engineering employees and achieve zero incidents in the future. The LBNL Electrical Safety Officer plans to incorporate elements of this new Engineering training into the Lab-wide course EHS 260, Basic Electrical Hazards and Mitigations. • Noteworthy Practice: A separate ORPS-reportable electrical safety event involving an Engineering employee prompted the division to seek improved methods for documenting multiple source Lock Out / Tag Out (LOTO) procedures. Engineering researched new LOTO software and hosted a product demonstration by the vendor for potential users. Following a positive responses from attendees, Engineering purchased the local version and EH&S ultimately purchased a version for Lab-wide use. 	<p>addressed the hazard, he stated he has been aware of it for some time and other safety matters, such as enforcing use of safety glasses, have taken priority. Engineering did not enter the finding into CATS for tracking.</p> <ul style="list-style-type: none"> • Observation: The MESH Team noticed first aid kits mounted on the wall in the Building 77 machine shop. The availability of first aid supplies may discourage reporting injuries to Health Services as required by Lab policy. The division safety coordinator noted that the presence of these kits represent legacy practices and will advise removal.

Division	Noteworthy Practices	Opportunities for Improvement
Life Sciences	<ul style="list-style-type: none"> • Following its LSDSC meetings, the Division summarizes current ES&H issues and formats the information into a Life Sciences Division Safety Bulletin. Bulletins are posted in common areas for LSD staff to read. The Division should explore additional avenues to promote readership. • The Division has committed resources for a Deputy Division Safety Coordinator position to assist with the implementation of ISM. This individual also serves as the LSD representative to the Safety Review Committee. • LSD increased awareness of ergonomic issues and allocated almost \$90K for ergonomic equipment in FY 2007. The MESH team heard positive feedback from employees on recently procured electric pipettors. The Division is in the early stages of addressing ergonomics at microscope user stations. They are also investigating high-throughput robotics to reduce repetitive stress injuries. • The new employee orientation program is a good mechanism for ensuring a common safety foundation. This enables the Division to focus on LSD-specific issues and to encourage safety discussions among Division employees. New employees also meet the Division Safety Coordinator. Furthermore, LSD is working with the EH&S Division to develop a division-specific ESH 010 Introduction to Safety class. 	<ul style="list-style-type: none"> • Concern: LSD has established its own Division-specific Job Hazards Questionnaire (JHQ). Over time, it has diverged from the Lab's institutional JHQ and LSD is working with EH&S to resolve the differences. LSD should either implement a process to ensure their applicable JHQ questions are the same as the institutional JHQ or adopt the institutional JHQ. • Concern: The new employee orientation that LSD provides for all new hires and guests is presented via videotapes that were recorded in the mid 1990's. LSD is working with EH&S Training to obtain more up-to-date materials and is developing a web-based presentation format. In the interim, LSD should work with EH&S Training to ensure that credit given for EHS courses represent information provided in the institutional courses. • Concern: The MESH team observed several lapses in safety practices, including an employee working in Building 84 in a Biosafety Level (BSL) 2 lab not wearing a lab coat while handling Risk Group (RG) 1 biological material. • Observation: Students are not explicitly mentioned in the staff accountability section of the ISM plan. The LSD ISM plan does address supervisors' responsibility for ensuring proper safety training for students. • Observation: Additional training for the building managers on mitigation of safety related issues would be useful. Two of the building managers interviewed did not recognize that they need to take action on safety related issues. While the Division expanded the safety role for these individuals almost 2 years ago, they have not updated their position descriptions to reflect this. • Observation: Communication of ES&H issues needs improvement. LSDSC meets only when there is sufficient new material to present, as deemed appropriate by the Division Safety

Division	Noteworthy Practices	Opportunities for Improvement
		<p>Coordinator, and as warranted by the Division's safety performance. Last year the committee met only four times, on average attendance was less than 75%, meetings typically last less than one hour, and there was no meeting between October 2006 and March 2007</p> <ul style="list-style-type: none"> • Observation: LSD maintains its own Space Hazard Database. This information is not readily available to all stakeholders. LBNL accounts for all the hazards at the Lab through the HEAR database. LSD should work with the HEAR committee to ensure that their needs/requirements are included in the latest version of HEAR so that they can document and account for their hazards institutionally. • Observation: Overcrowding was recognized as a problem in some of the buildings. Current efforts to reduce clutter and provide appropriate storage do not appear to be especially effective. • Observation: The MESH team visited a vacated lab where dry chemicals and biological materials remained. LSD is in contact with the PI previously in charge of the lab and the Division has hired a student to assist in the preparation for disposal of the remaining chemicals. The Division ISM Plan indicates that PI and laboratory managers are to advise the Division Safety Coordinator of plans to vacate space or relocate operations no less than two months in advance of such action to allow time for removal of radioactive and/or hazardous chemical materials. Prior to the PI's departure, he did coordinate with the Radiation Protection Group to remove all radiological materials and decommission an X-ray irradiator. However, it appears that much of the remaining cleanup effort did not begin until after the PI's departure. • Observation: The Division is not using the Facilities Work Request Center function of CATS for safety deficiencies requiring Facilities attention.

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Nuclear Science	<ul style="list-style-type: none"> • The 88-Inch Cyclotron control room has several process instructions that are posted in key locations. Each of these instruction sheets are signed and dated, an excellent practice for ensuring that posted instructions remain current. • The Project/ Facility Safety Review Questionnaires are an effective tool for project leaders in identifying and controlling hazards. These forms are tailored to NSD needs, and the NSD safety program requires that they be completed annually and when there are changes to a project safety envelope. This ensures that all projects are reviewed annually in a manner that is easy for principle investigators to apply. • The NSD Walk-Around Checklists provide research groups with an easy and effective basis for assessing safety hazards in their workspaces. The checklists are designed to review the most common hazards found in research laboratories. NSD has implemented a formal requirement that these forms are completed quarterly by each PI. PIs understand the value in this exercise and are responsive in completing forms. • The Monday Morning Meetings, a bi-weekly meeting that all division staff is invited to, is an outstanding ES&H communication mechanism. Safety discussion is conducted for 10 minutes or so before a scientific presentation. This is a good way of engaging scientific staff and ensuring robust staff representation. Staff appears to appreciate the safety discussion that takes place in these meetings and, in interviews, cited several safety topics that they found valuable. • Senior management involvement in the division safety program is noteworthy. Including safety in every agenda of the Director’s Monday Morning Meetings sends a strong message. Additionally, the Division Deputy sits on the Division Safety Committee and meets with the Division Safety Coordinator and EH&S Division Liaison weekly. 	<ul style="list-style-type: none"> • Concern: Not all project leaders are completing the Project/Facility Safety Review Questionnaires at least annually. Several forms were not fully filled out. NSD appears to lack a formal mechanism to ensure that these forms are filled out by all applicable parties and are completed properly. • Concern: The housekeeping of the Building 88 mezzanine level requires improvement, as current conditions result in safety hazards. Most significantly, a Cf-249 source was recently discovered on this level. In addition, several seismic hazards are present, as some of the storage cabinets are not secured. • Concern: The NSD Safety Committee lacks a meaningful charge. NSD should review the role of the Committee and provide it with a meaningful purpose. • Observation: Safety activities at Building 88 appear to be managed separately and distinctly from the rest of the division’s activities. NSD should review this model. Significant issues at the 88” Cyclotron should be communicated to all division staff. • Observation: When “unsatisfactory” conditions are noted on NSD Walk-Around Checklists, the form provides no indication that these findings were pursued. NSD may want to consider augmenting the forms to provide space to note the resulting actions for unsatisfactory conditions. • Observation: The ergonomic condition of 88” Cyclotron control room workstations is not optimal. • Observation: The 88” Cyclotron uses a key system as an administrative control to restrict access to the cyclotron during certain operations. A secondary key, which is obtained from the control room, provides access to the mezzanine level. This second key is only required when Prompt External Radiation Fields (PERF) are present in the Cyclotron. The key itself is not considered a control item; rather, the act of engaging the

Division	Noteworthy Practices	Opportunities for Improvement
		<p>second lock communicates the presence of PERF conditions. Although staff is encouraged to sign out the key for each use and then, following use, return it to the control room, they are not diligent in doing so. Building Management notes that when staff signs out the second key in the control room, they review a map of PERF locations. However, this benefit is not fully realized under current practices.</p> <ul style="list-style-type: none"> • Observation: One RWA received three level 1 violations in an 18-month span for missing monthly surveys. However, no long-term corrective actions have been developed to address this issue. Additionally, the repeat violations beg the question of whether or not the current individual should be listed as PI for this RWA and responsible for the monthly surveys. • Observation: No division-wide discussion was conducted to review the RWA violations, lessons learned, or emphasize the importance of authorization compliance.

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Institutional		<ul style="list-style-type: none"> • Institutional Concern: NSD struggles with ensuring that all appropriate guests complete the Job Hazard Questionnaire (JHQ). The Lab’s systems do not provide an easy and effective way for divisions to monitor which guests and visitors should be completing JHQs. As a result, the division safety coordinator spends extended time with principal investigators and other hosts in order to make the proper determinations. • Institutional Concern: A number of employees and guests who work at LBNL on an infrequent or sporadic basis but more than 30 consecutive days have not taken the JHQ as required. In a number of instances, management has waived the JHQ requirement, without documented justification or policy allowance/criteria for waiver, for people who may work less than 10 hours a month, are on call, or work only a day or two every few months but have been working for LBNL over 30 consecutive days. The criteria for waiving JHQ, training, and other requirements are nonexistent. • Institutional Observation: An NSD post-doc expressed concern over the quality of fire extinguisher training provided by the lab, noting the online refresher may not be sufficient and observing that the initial training only includes hands-on instruction for one type of extinguisher, not the type of extinguisher applicable to her laboratory. • Institutional Observation/ Recommendation: When a “pen-and-ink change” of an X-ray System Supervisor also prompts a change in responsible division on an X-ray authorization (XA), RPG should re-route the XA for review and approval.