Safety Review Committee
January 19, 2007
10:00 AM – 12:00 PM

Minutes

Committee Member	Representing	Present
Ager, Joel W.	Materials Sciences Division	X
Banda, Michael J.	Computing Sciences Directorate	X
Blodgett, Paul M.	Environment, Health and Safety Division	X
Cork, Carl	Physical Biosciences Division	X
Fletcher, Kenneth A.	Facilities Department	
Franaszek, Stephen	Genomics Division	
Kadel, Richard W.	Physics Division	X
Leitner, Daniela	Nuclear Science Division	*
Lucas, Donald	Environmental Energy Technologies Division	X
Lukens Jr., Wayne W.	Chemical Sciences Division	X
Martin, Michael C.	Advanced Light Source Division	X
Nakamura, Seiji	Earth Sciences Division	X
Seidl, Peter A.	Accelerator & Fusion Research Division	X
Smith, Linda K.	Information Technology Division	X
Taylor, Scott E.	Life Sciences Division	X
Thomas, Patricia M.	Safety Review Committee Secretary	X
Wong, Weyland	Engineering Division	X

Others Present: Ken Barat, Jerry Bucher, Steven Chu, Richard DeBusk, Brandon DeFrancisci, Roger Falcone, Keith Gershon, Jim Floyd, Michelle Flynn, Mark Freiberg, Ben Feinberg, Mary Gross, Howard Hatayama, Carol Ingram, *Claude Lyneis (for Daniela Leitner), Larry McLouth, Robert Mueller, John Muhlestein, Georgeanna Perdue, Robert Schoenlein, Janice Sexson, Donna Spencer, Bill Wells

Minutes of December Meeting – No comments have been received.

Advanced Light Source MESH Response – Roger Falcone

The Advanced Light source (ALS) is a unique blend of "big science" (the accelerator itself) and "small science" (experiments done by small research teams). Users have increased in number, and there is more rapid user turnover. As the breadth and depth of science has increased, there are more users who are unfamiliar with synchrotron radiation hazards and aren't interested in knowing the details of how the ALS works. The ALS has organizational challenges because there are staff matrixed from several other divisions (Engineering, AFRD, Facilities) and beamline operations by other divisions (Materials Sciences, Chemical Sciences, Life Sciences, Physical Biosciences). To meet these challenges, ALS has developed specialized environment, safety, and health management systems, including accelerator safety analysis document and safety envelope, a beamline

review committee and design/commissioning process, and an experimental safety review process.

There have been many challenges this year, including management changes, budget cuts, and radiation safety problems. Corrective actions have been developed and are being implemented, including: reorganizing to clarify roles and responsibilities, splitting beamline coordination into floor operations and experiment coordination, replacing and adding staff (particularly ES&H Manager Jim Floyd), and implementing a supervision walkaround program. Richard Hislop from SLAC has conducted walkaround training and helped them develop a web tool for tracking supervisor walkaround activities. They have committed to twice a month walkarounds for all managers. ALS is piloting development of a hazard analysis and work planning process for 10 CFR 851 compliance.

Conducting the MESH review was challenging because there were so many changes in progress during the year. The review provided benefits to ALS because it helped in prioritizing and optimizing current initiatives and identified new issues.

Noteworthy practices found included: ALS safety website, QUEST process, the reorganization structure, confidence in stop work authority, pro-active planning for the upgrade to top-off mode, and establishment of the Staff Safety Committee.

A status chart has been developed to track implementation of corrective actions. Roger Falcone discussed the status of corrective actions for each observation and concern noted during the MESH Review:

- The roles and responsibilities for floor operations and experiment set-up coordination are now clearly spelled out in updated position descriptions.
- MOUs are being revised to explicitly state safety responsibilities of non-ALS beamline scientists. About 10-20% of the beamlines are non-ALS operated.
- Lead experimenter and user responsibilities are being defined.
- Two new floor operators have been hired.
- Beamline-specific training is being developed. The introductory training video is being improved. ALS is working with EH&S to develop more web-based courses.
- The Radiological Work Authorization (RWA) was revised. A radiation physicist job has been posted.
- ALS is working with EH&S Division to improve industrial hygiene, occupational safety, and waste management practices.
- It is difficult to reduce the number of procedures because many are required by the Accelerator Safety Order; however, ALS is working to improve understanding of procedures by using the JHQ to identify which procedures are relevant and integrating the procedures with training. The procedures will be important to 10 CFR 851 compliance.
- Laser AHDs are being integrated into the AHD database. Training and hazard controls are being standardized where possible. There is increased oversight of laser experiments.
- ALS is developing improved indicators of beamline status and hazards present.

- Model practices developed at beamline 8.2.1 will be used as examples for other beamlines.
- Closure of Bldg. 10 is creating space problems that will require on-going management attention. The situation will improve when the new user support building is constructed.
- ALS Management is regularly reviewing the status of CATS corrective actions and they are on track to retire all old ones by January 31. Jim Floyd is entering new findings into CATS as supervisors report them in their walkthrough reports.
- The Staff Safety Committee is following up on concerns and recommendations made by staff. The committee investigates accidents and incidents. They are developing improvements in laser and robotic safety, x-ray microscopy, and shielding end-points.

The supervisor walkthroughs focus on safety discussions and observations of behavior, such as ladder and PPE use. The web-based tracking system has a checklist and spaces to record observations. The system sends e-mail alerts to Jim Floyd when new findings need to be entered in CATS. The plan is to eventually link the system directly to CATS.

EH&S Division is working with ALS to ensure the Experiment Summary Sheet process will meet the Job Hazard Analysis requirements of 10 CFR 851.

Chairman's Comments -- Annual Report – Don Lucas

Attendees introduced themselves to Dr. Chu. Representatives from the UC Berkeley campus, LBNL EH&S Division, DOE Berkeley Site Office, and SRC subcommittee chairs were present, as well as SRC members. Over 100 people are involved in SRC activities, including members of the 6 subcommittees. The Division Safety Coordinators are now a subcommittee. SRC has a good relationship with the EH&S Division, providing checks and balances to the safety systems.

A major activity in 2006-2007 is reviewing proposed changes to PUB-3000 to ensure compliance with 10 CFR 851. An e-room has been set up for SRC members to review proposed changes and submit comments in advance of the meetings. Sometimes small changes can affect division work. Don Lucas has worked with EH&S to develop a graded approach to reviewing proposed changes. Non-substantive editorial changes can be approved by Don Lucas without going through a committee vote. Most changes are approved by a vote of the SRC members. Major changes in policy may be sent to Dr. Chu for approval after being reviewed by the SRC.

MESH reviews are peer reviews by representatives from other divisions. Each division knows it will be reviewed every few years, but that doesn't stop committee members from offering very candid observations. The MESH review reports are public, and copies are available. The reviews this year have been finding noteworthy practices in the areas of communications, organization changes, self-assessment practices, and accountability.

There are opportunities for improvement in training, compliance, responsiveness to concerns, awareness of requirements, hazard analysis, and correcting issues promptly.

Don Lucas has identified some challenges for the SRC in the year ahead:

- Make PUB-3000 more user friendly;
- Determine whether the new policies will make LBNL safer and improve the safety culture;
- Improve oversight for off-site work (campus and field work);
- Continue to strengthen the relationship with the UC Berkeley campus EH&S functions. For example, LBNL worked with UC to provide more oversight and training for campus laser users, while preserving the MOU;
- Continue to improve communications with DOE Berkeley Site Office. MESH responses used to be closed meetings, but we found that divisions want their DOE representatives to hear the responses.

Dr. Chu asked whether there is a difference in safety cultures between DOE and non-DOE work on campus. Mark Freiberg said researchers see LBNL as having a more top-down culture than UC. The levels of funding for safety are different, and the regulations governing the work are different. There is a steering committee lead by UC/LBNL management with 9 subcommittees addressing different aspects of the relationship between UC and LBNL to find ways of working together more effectively. The concept of having a "firewall" between the campus and lab safety systems is being reconsidered. As DOE moves toward enforcing OSHA standards, there will be fewer differences in requirements. The cultural differences between PIs remains a concern. The PIs' attitudes and practices send the message to their research group as to whether safety is important. We need to encourage PIs to demonstrate safety, and use our line management system to drive safety performance. Dr. Chu was on a safety improvement committee at Stanford. He has seen their culture change so that all PIs are held responsible for safety. Chancellor Birgeneau at UC Berkeley is more involved in talking about safety. The laser safety committee on campus is insisting that PIs become more involved. All levels of line management need to be involved. We need to build a culture where students help each other to work safely. All work leads, PIs, and managers at LBNL are now being required to do walkthroughs.

Job hazard analysis is very important. There was an incident recently involving a person working with acids to do etching under a fume hood and being exposed to hydrofluoric acid vapors. Because the person had been trained and was working under a hood, the amount of exposure was reduced, and because the person reported the incident and sought medical treatment right away, the injury was reduced. Everyone who works with acids has to know about the inhalation hazards. Acid accidents can kill people. A "Today at Berkeley Lab" article is being prepared. Stories like this help to make hazards real to people. Dr. Chu wants to see some kind of Lessons Learned story in TABL every week. Not everyone reads TABL, so we need to use other ways to communicate as well.

In the EH&S survey responses, Dr. Chu found some complaints from a person about their workstation. People are not always communicating with their supervisors about their

ergonomic problems. That is another reason it is important to have supervisors out doing walkthroughs and talking to people.

Peer pressure can be a positive force to promote safety among professors. The College of Chemistry at UC has a well-organized mentoring system where post-docs and graduate students teach safe work practices to less experienced undergraduates. Their workspaces are crowded, so they all gain by looking out for each other.

At the Joint Genome Institute, it was found that including more production workers in the ergonomics committee helped to identify solutions to problems and reduce injuries. It is important to include the affected people in the decision-making.

To improve ergonomic safety, we have to be careful we are not sending mixed signals about the importance of taking breaks and the importance of meeting deadlines. Dr. Chu asked EH&S Division to look into whether "dragon speak" voice activated software could ease ergonomic strain for some tasks. Line management needs to be aware of good ergonomic practices and ensure they are implemented. It is also the individual's responsibility to work safely.

Howard Hatayama commented that the SRC challenges and debates EH&S proposals, and that process helps to make them better. Dr. Chu asked for examples. Don Lucas described how the electrical safety chapter changes were sent back for revision several times before being accepted, and how the laser safety subcommittee has worked with EH&S to develop improvements in laser safety requirements.

Proposed Changes to PUB-3000

Richard DeBusk summarized the progress made and actions needed to comply with 10 CFR 851. During the special meeting on January 26, the SRC will be reviewing the proposed Chapter27 for Cranes, Hoisting, and Rigging and Chapter 28 for Forklifts and Other Industrial Trucks. On February 5, there will be another special meeting to review the new Chapter 32 on Hazard Assessment. The Job Hazard Analysis system will be pilot tested at the Advanced Light Source. If it doesn't work, there can be revisions later. At the next regular SRC meeting on February 16, we will be reviewing Chapter 29 Excavation Safety, Chapter 30 Fall Protection, and Chapter 31 Subcontractor Safety.

Chapter 16 Laser Safety –Ken Barat

The laser chapter has been completely revamped. Educational information has been taken out of the chapter and moved to a web page. Ken Barat reviewed laser safety requirements of other DOE Labs. One recent concern has been the variable quality of laser pointers.

As PUB-300 chapters are changed, Integrated Safety Management (ISM) plans need to be updated so that they do not contradict PUB-3000. The ISM Board review process has

fallen behind and MESH teams have noted that some division plans are not up to date. Principal Investigators tend to rely on PUB-3000 rather than their division ISM plans. ISM plans are becoming more important. The template for ISM plans also needs to be updated.

There were comments on section 16.3.1, which discusses the responsibilities of supervisors and work leads. SRC members asked that the section be clarified by adding a statement that supervisors are not absolved of safety responsibility when they assign a work lead to their experiment. The definition of "work lead" should be consistent with Chapter 1, but some redundancy is acceptable. Supervisors must ensure the work leads are doing their jobs properly.

It is difficult for PIs to ensure unauthorized people are not using their equipment in some locations. Card key or special key access controls can be used in some places. Supervisors may need to consider some engineering controls, such as card keys or locks on power supplies. All PIs must spread the message to their groups that it is not acceptable to do work without proper training and authorization from the PI who owns the equipment.

EH&S and division review of AHDs allows assessment of the appropriateness of the work lead assignments.

The proposed changes to Chapter 16 were approved by a vote of all SRC members present with no objectors.

The meeting was adjourned at 12:00 PM
Respectfully submitted,
Patricia M. Thomas, SRC Secretary