

Safety Advisory Committee
 June 19, 2009
 10:00 AM – 12:00 PM

Minutes

Committee Member	Representing	Present
Banda, Michael J.	Computing Sciences Directorate	X
Bello, Madelyn	Human Resources Advisor	X
Blodgett, Paul M.	Environment, Health and Safety Division	X
Dubon, Oscar	Materials Sciences Division	
Floyd, Jim	Safety Advisory Committee Chair	X
Fujikawa, Brian	Nuclear Science Division	X
Ji, Qing	Accelerator & Fusion Research Division	X
Kadel, Richard W.	Physics Division	X
Kostecki, Robert	Environmental Energy Technologies Division	
Lukens Jr., Wayne W.	Chemical Sciences Division	X
Martin, Michael C.	Advanced Light Source Division	X
Nakagawa, Seiji	Earth Sciences Division	X
Petzold, Christopher J.	Physical Biosciences Division	X
Pollard, Martin	Genomics Division	X
Sopher, Ted	Information Technology Division	
Taylor, Scott E.	Life Sciences Division	X
Thomas, Patricia M.	Safety Review Committee Secretary	X
Twohey, Daniel	Directorate/Operations	X
Wong, Weyland	Engineering Division	X

Others Present: Jerry Bucher, Richard DeBusk, Brandon DeFrancisci, Joe Dionne, Julie Henderson, Jim Krupnick, Peter Lichty, Don Lucas, Robert Mueller, Mike Wisherop

Chairman's Comments – Jim Floyd

Qing Ji was introduced as the new representative for the Accelerator and Fusion Research Division.

The most recent version of the Safety Advisory Committee (SAC) charter was distributed to committee members prior to the meeting. One member objected to the proposed reporting structure.

Jim Floyd asked each committee member to discuss the changes in the committee charter with his/her Division Director. Jim Floyd would like to receive an e-mail from each Division Director or Deputy that either confirms the continued appointment of the current representative or nominates a new representative to Paul Alivisatos for appointment to the committee.

There was a concern about the plan to have the committee get involved earlier in the policy development process. The recent draft policy for transportation of research samples had links that did not work. It is difficult to understand a draft policy if we cannot determine what it means. There was a request that Environment, Health & Safety (EHS) Division take care of the basic quality control measures such as proofreading and checking links, so that SAC working groups can concentrate on working on the policy issues.

Jim Floyd met with Howard Hatayama to prioritize possible topics for the meeting agenda. Howard Hatayama planned to discuss the Health, Safety and Security (HSS) Corrective Action Plan (CAP), but was unable to attend the SAC meeting due to illness.

HSS Corrective Action Plan update – Jim Floyd

Jim Floyd presented an update on the status of the corrective action plan for Health, Safety and Security (HSS) audit. The report identified 4 strengths, 3 areas of weakness (activity-level work control, requirements management, assurance processes), and 10 findings. The draft Corrective Action Plan was submitted to the Department of Energy (DOE) 2 weeks ago. LBNL identified two additional latent weaknesses through the causal analysis process – project management and accountability. Most of the draft corrective actions propose a similar methodology: verify the requirements, perform a gap analysis, benchmark practices at other labs, identify user requirements, develop new processes, identify resources, obtain management concurrence, implement the new process, validate completion of the implementation, and perform an effectiveness review.

There was a comment that we should ensure that a prototype stage is included in the development of new processes.

There was a question about how the Corrective Action Plan will affect the Job Hazards Analysis (JHA) process. Notices for renewal of JHAs are going out now. Divisions are advised to continue to implement the existing process, as it will take a long time to get a new tool developed. Don Lucas commented that EHS is aware that there are problems with the current JHA system. The addition of work descriptions to JHAs was delayed during the HSS preparations. Work Group owners should add/update their work descriptions before the individual JHAs are updated, so that the individual JHAs incorporate the most recent changes from the Work Groups. EHS will be meeting with Division Safety Coordinators next week. There have been problems with supervisors and work leads not understanding what they are supposed to do, and there have been continuing changes to the database.

There is a commitment to disciplined project management during the CAP implementation. Jack Salazar will be the project manager, reporting to Anita Gursahani. There was a comment that user feedback needs to be improved. More user input will be needed this fall as the new processes are developed. Jack Salazar is working on a communications plan. Weyland Wong encouraged the SAC and Division Safety Coordinators to work together.

Cryogen Safety Improvement Plan – Joe Dionne

Joe Dionne was the Environment, Health and Safety Director for Clorox Corporation global operations for 20 years. He has recently become the LBNL EHS Subject Matter Expert for pressure and cryogenics. Some dewar handling issues were identified during the HSS audit. The transport of dewars in occupied elevators is prohibited. PUB-3000, Chapter 7 is mostly about pressure safety, with some information about cryogenics. In the future, Joe Dionne plans to develop a separate chapter that clearly defines the roles and responsibilities for handling cryogenics. He envisions an oxygen deficiency assessment process, and a requirement for Activity Hazard Documents (AHDs) for oxygen monitoring systems. He wants to improve training, including on-the-job training. There will be requirements for maintenance and asset disposition. He will be looking at the use of cryogenics in tunnels and caves. There will be training and certification for people who fill large (160 liter) dewars. He showed examples of signs used at other Labs. EHS will be doing studies of simulated releases and calculations to verify oxygen deficiency controls. The Compressed Gas Institute has published studies. Different levels of controls are appropriate for different oxygen deficiency hazard levels.

Scott Taylor reminded Joe Dionne that dewars are delivered by outside contractors and asked that contractor issues be included. Richard Kadel asked for clarification of requirements for moving dewars between buildings. Mike Kritscher asked for feedback on seismic securing methods. He also asked that the new cryogen chapter be coordinated with the pressure safety chapter to ensure there are no conflicts in the requirements. Wayne Lukens requested that the properties of both helium and nitrogen cryogenics be considered.

The development of the cryogen safety improvement plan is not under the Corrective Action Plan. The next step is to put together a group of interested people to work on the plan. Wayne Lukens, Michael Martin, and Mike Kritscher are interested in participating. It was suggested that the Facilities maintenance groups that work with cryogenics, including the regulator shop and the refrigeration shop, be included. Peter Lichty asked that the dewars that are essential to be kept operating during emergency shutdowns be identified. Procurement should also be involved, to address vendor and maintenance issues.

Subcommittee on chemical explosion incident prevention—Don Lucas

The two recent chemical container explosion incidents have been reported as Level 2 Occurrences. Corrective Actions require Berkeley Site Office (BSO) approval. The most frequent cause of container explosions is gas generation from solutions containing either nitric acid or hydrogen peroxide. Historically, there are a lot of descriptions of explosions involving nitric acid in the literature. The proposed policy would address these situations.

The proposed policy for nitric acid would include:

- No solutions of nitric acid could be stored as waste. This would include both organic and inorganic mixtures. Benchtop treatment would be required for solutions >5% by weight nitric acid, or containing nitric acid and any quantity of metals. There is no de minimis amount of metals, because these solutions usually result from cleaning or etching, and the amount of metals is not known. The benchtop treatment must be completed on the day that the waste is generated.
- There will be a template for benchtop treatment. This is being developed from a Materials Sciences Division pilot.
- Unused nitric acid solutions may be stored in the original container with the bottle taped shut, or in a vented container. The subcommittee will be meeting with a vendor to discuss available vented caps. There was a comment that containers with vented caps need to be kept under a hood, because they may be venting nitrogen dioxide, which is toxic.

The proposed policy for hydrogen peroxide is similar. Piranha Etch is an example of a hydrogen peroxide solution used at Berkeley Lab. No solutions >8% hydrogen peroxide could be stored as waste. Wayne Lukens commented that Piranha Etch solutions for <8% will also evolve gas. Wayne asked the subcommittee to look at what other Labs are doing. Don Lucas said that the subcommittee looked at the Oak Ridge systems, but it did not seem to be working well. Standards based on regulatory compliance may not be enough to provide protection from possible human errors. The treatment required would depend on the concentration and volume. 30% solutions can be purchased from vendors, and the caps are not always vented. Storage of unused solutions in the original containers would be allowed.

The plating shop has a fixed treatment unit. Labs with acid drains can continue to use them.

EH&S will use the chemical inventory and general broadcasting to communicate the new policy.

Electrical Hazard Activity Hazard Documents (AHDs) – Mike Wisherop

The proposed schedule for electrical AHD implementation has been changed. Originally, the AHDs were supposed to be in place by June 30. The AHD software has been upgraded. A questionnaire will appear when a new electrical hazard schedule is selected. AHDs with electrical hazards will automatically be sent to Keith Gershon for review. There are six electrical AHDs being developed. Katherine Johnson is helping Keith Gershon. An advisory group is being developed. The first meeting was on June 18. There was also a meeting with the Division Safety Coordinators. A pilot program will be conducted during August and September. The goal is to get everyone who needs an electrical hazard AHD started on the process by December 1, 2009.

AHDs will be required for energized electrical work on equipment operating at > 50 Volts and 5 mAmps that is not covered by an Electrical Work Permit. People who develop AHDs with electrical hazards (Principal Investigators, Work Leads) and people

who perform energized electrical work under the AHDs will be required to take the “Introduction to NFPA 70E” class. Energized electrical work will also need formal Division authorization. AHDs are being required because Job Hazards Analyses (JHAs) are too general, authorization must be documented, and skills must be demonstrated.

The non-Nationally Recognized Testing Laboratory (NRTL) equipment survey and inspection program is also being implemented at the same time.

EHS is looking at whether the electrical AHD process will work for Facilities. The Facilities Division already has a more rigorous system in place to authorize electrical work. A change to PUB-3000 may be needed to allow for equivalence.

The volume of AHDs needed is not known, but is estimated to be about 200. There were questions about whether LBNL’s electrical safety resources are adequate to provide assistance and ensure timely review of the AHDs. Engineering Division and National Energy Research Scientific Computing (NERSC) will be involved in the pilot program. EHS is looking for an additional PI of a small laboratory who would like to participate in the pilot.

Proposed Policy on Transportation of Research Samples – Don Lucas

Under the current policy, researchers are only allowed to transport hazardous materials within buildings or between adjacent buildings. Moving research samples beyond those limits must be done by either Waste Management or Transportation. EHS wants to allow researchers transport samples safely off site, or between non-adjacent buildings. The Department of Transportation regulations have an exemption clause for “materials of trade”. Wayne Lukens asked Don Lucas to also look at whether there is an exemption clause for non-profit organizations that could be applicable. Common Carriers are covered by another section of the regulations that strictly controls the entire transportation chain. The Common Carrier requirements prohibit researchers from taking materials from their labs to Transportation for pick-up by a Common Carrier.

Richard Kadel asked for information on where to find the regulations. He is concerned that if regulations are interpreted more stringently than required, it will affect LBNL’s competitiveness. Don Lucas explained that the Department of Transportation (DOT) regulations are very complex, and the options are to either have a detailed policy, or to instruct people to contact EH&S for guidance before transporting samples. For example, carrying samples on public transportation is not allowed. There are restrictions on the classes and quantities of substances that may be transported. Non-research staff would not fall under the “materials of trade” exemption. One option would be to provide DOT training to the staff. There are different rules for engineered nanomaterials. There are detailed packaging requirements.

There was a question about whether we should have separate requirements for on-site, off-site, and field-site transportation. The regulations are not entirely clear as to whether on-site LBNL roads are considered “public” roads. Jim Floyd suggested that LBNL user

needs should be determined before establishing a policy. A Subject Matter Expert needs to be identified. The most knowledgeable people in EH&S for transportation requirements are in Waste Management; however, this policy would be for non-waste materials and some of the requirements are different.

There was a question about whether the policy would cover biomaterials. The intent is to cover transport of biomaterials in the Biosafety Manual. The manual is not completely clear on what materials are considered “infectious”. The Biosafety manual is also being re-written.

There was a concern that it will be difficult to communicate the requirements to outside users coming to LBNL. The policy has to be easy to read. There may be de minimis quantities (1 gram/1 ml) for non-radioactive materials. There was a suggestion that the policy include flow charts to help users understand the requirements.

The meeting was adjourned at 12:01 PM
Respectfully submitted, Patricia M. Thomas, SAC Secretary

Minor changes to PUB-3000 – Mike Wisherop

The following information about minor changes to PUB-3000 was provided for distribution with the meeting minutes:

Chapter 23, Seismic Safety – The 1000-lb. limit for securing equipment has been removed because it conflicts with current standards (California Building Code and ASCE-07-05), which have no lower bound limit. Seismic securing is necessary for equipment of any weight if it presents a toppling hazard, or may block a room egress.