

More of a comment than a question: Many of those online now were involved in the six-month stand-down in late 2004 that was caused by an incident with key characteristics (arc flash) that are like what we are dealing with now. Most of the lab received arc flash training during that stand-down. I believe that because of this, arc flash awareness is (or was) far greater at SLAC than at other DOE labs, and SLAC's reputation in this regard is well known in the lab complex, making this incident doubly tragic and concerning. In parallel with the work-planning process development now underway, and while the detailed fact-finding is underway, I would like to ask that we review arc flash hazards together, once again.

Thank you for your comment. Learning from past incidents is important to our continuous improvement as a learning organization. The Control of Hazardous Energy-specific pre-job briefing is a tool that focuses on the hazards associated with hazardous energies, including those conditions associated with arc-flash potentials. One resource for non-electrical employees looking to better understand SLAC's electrical safety program is the web-based Course 251: [Electrical and General Safety Awareness for R&D](#).

It came to my attention that Lawrence Livermore National Laboratory is about to fill two positions in support of a lockout/tagout team. So, it seems they have dedicated positions/team for this important task. Could this be something that we (SLAC) should consider doing??

Reassessments of safety programs at SLAC, including lockout/tagout, are ongoing. We will make the appropriate adjustments to programs (including resourcing as needed) based on the outcomes.

Are we at the point to start assessing the accident impacts on lab operations and projects?

Some of the impacts are known, but we are still assessing impacts to certain operations, including the restart of LCLS and SSRL.

Heavy rain and storms have been the story over the past few weeks and will continue in the next week or so; many of our operations staff did not get a chance to participate in the stand-down as intended; what is the plan for them?

The [Jan. 9](#) and [Jan. 12](#) sessions were recorded and can be reviewed by anyone who was unable to attend either event.

Is the lab reviewing the engineering controls on particularly hazard-prone systems to see if we can improve on safety by improving engineering controls?

Since last summer, numerous efforts across the lab have focused on improving engineering controls. In the Technology Innovation Directorate's (TID) Building 44 test laboratory, engineering controls were programmed into the RFAR test stands to disable turn-on of the high power rf test stands that run radiation-generating devices after authorization dates for that test stand expire (more in this [SLAC Today article](#)). Similarly, in the TID instrumentation division, 3D-printed shields were fabricated to prevent accidental contact and startle hazard when fabricating and testing R&D control boards.

A prior example is in LCLS, where an interlock for an X-ray lens system was introduced to remove the need for manual energy verification, avoiding the potential to operate outside of the permitted range.

More generally, high power laser systems have a comprehensive suite of engineering controls, including card access to rooms and to operate the devices that are tied to an individual's training status.

Who can we send recommendations to for improvements we think of in the future?

Input on the pre-job briefing and Control of Hazardous Energy (CoHE) work processes can be sent through [this form](#). Feedback can also be provided directly to your [ESH Coordinator](#) or through your line management.

Are there other things outside of CoHE/reviews that would help with safety in general as people do their work? e.g. In other contexts even simple things like design adjustments to visual labeling systems seem to make a difference (e.g. graphical design of hazard signs for roads come to mind as an example where design can make a difference)

These are good suggestions and definitely can help. Efforts to ensure clear signage and labels have been underway since last summer; graphical signs that are simple and clear can prevent potentially confusing or mixed messages and can serve as excellent visual aids. We encourage everyone to identify local opportunities to improve safe working. Please continue to raise suggestions with your local team.

I'm curious whether accident/injury frequency is in any way correlated with pre-job briefings being conducted over Zoom rather than in person or face-to-face. Zoom is very convenient, of course, but maybe not a good substitute for face-to-face. (At LSST/Rubin, our daily tailgate meetings are generally attended by Zoom but any time a real lift, for example, needs to be performed, there's an in-person tailgate attended inside of IR2 - no remote option.)

This correlation has not been made to date, but a best practice is certainly in-person attendance at a pre-job briefing. Where circumstances prevent in-person attendance, remote attendance has offered an alternative, but in-person attendance should be the focus and priority for those performing, conducting and supervising on-site work.

It seems that a not insignificant amount of documentation (schematics in particular) is outdated or simply partly wrong. That is the same paperwork that should build the base for work planning and control. It appears that SLAC had at one time a documentation control in place, but the department was dissolved and/or staff was let go years ago. Is it acknowledged by management that this could be a problem? And, if yes, are there any discussions/plans to reinstate a quality control for documentation?

Current and correct documentation is one of the focal points in both the pre-job briefing and CoHE verification process reviews. Additionally, there is an effort underway to review existing

drawing databases and how revision and configuration controls are maintained. SLAC continues to have formal repositories for configuration control of key documents, such as [SEDA](#).

A number of task forces were formed in response to the lab-wide safety stand-downs last year. What has been done to address the concerns and recommendations generated by those committees?

There were a number of task force activities launched in the summer. Some were area-specific, with examples being:

- Task force on Planned Access for Maintenance and Modifications (PAMM) activities in the accelerator complex (“Planned Access for Maintenance and Modifications”). Actions have included a more formalized approach to assessing a reasonable scope of work; scheduling a more predictable cadence of PAMM days; and extending the duration of PAMMs – all designed to reduce the level of stress in the system
- Task force on the Front End Enclosure (FEE), which is a complex area in which staff from AD, LCLS, F&O, ESH and others have to plan and execute work together. Outcomes included clearer processes for how to initiate and release work to ensure consistency between the directorates. Longer-term actions include the development of more integrated workflows, which is now underway as part of the wider improvements of our WPC process, performance management and accountability.

More generally, the output of the task forces have driven actions associated with re-planning of the LCLS-II project to allow better planning and relieve schedule pressure, rolling out the pre-job briefing that was trialed at LCLS (more in this [SLAC Today article](#)); and improvements in the [Management Walk-Around](#) (MWA) tools.

Do our metrics allow for the identification of ES&H problem “hotspots” or task types within SLAC, if any such problem areas exist, where focusing special attention might most help?

Injury metrics have been used to target health and safety efforts. For example, industrial ergonomic strains/sprains/over-exertion are the number-one type of lost-time injuries at SLAC. This is why we have targeted ergonomic outreach as part of work planning, encouraged pre-job ergonomic planning, offered ergonomic services to assist with task evaluation, etc. Data collected from MWA observations is also trended to target issues.

Something that I don’t think has been explicitly mentioned (unless I missed it): A big part of feeling rushed/pressured/stressed stems from aggressive timelines for projects which often have been put down on paper many months or even years ago without giving adequate breathing room for unforeseen events and to account for these safety slow-downs. Is there any action that could be taken to, say, add a mandatory buffer to allow for movement in timelines?

A critical part of successfully delivering a project is the development and management of the project schedule, and the planning process involves incorporating the appropriate level of schedule contingency based on the complexity of the project. For all large projects, there is a mandatory in-built buffer between the ‘early finish’ dates and the formal ‘end of project’, known

as schedule float. This provides for flexibility in managing delays and other factors. But there are certainly improvements we can make to better plan for and manage these schedules, particularly in the event of unanticipated impacts to the work.

It was said that the pre-job briefing was in alpha stage before this stand-down and other safety/training/mentoring in the alpha and beta stages. Can we get an idea of roll-out dates?

The rollout of the pre-job briefing was taking what was already underway in pilot tests and applying it across the laboratory. These alpha and beta designations have now been removed from the SmartSheet headers on the pre-job briefing form.

It would be great if we had a single process, not a mishmash of different processes across the lab. TID has a different process vs AD vs F&O. Can we please have ONE process?

A universal single process for work planning and control is a goal and the subject of future planning sessions for process improvement.

When do we implement engineering controls for electrical CoHE? There are remote control actuators that can be installed on electrical installations that protect from arc flashes. Can we become more proactive to protect workers, not so reactive? Thank you
These types of controls have been in place already for electrical switching, as an example. The use of remote switchgear racking and remote switching are in widespread use.

Does it make sense to have a Slack channel to keep this line of questions alive? (Instead of limited to an all-hands).

Your supervisor or organization's management team can best answer questions relating to the work you do. For broader questions or discussion, existing channels like #general or #all-hands can be used. There is also the #slac-managers channel for those who are managers and have questions, comments or ideas relating to supervisory responsibilities.

Will we bring back the Penny For Your Thoughts or some other SMT office hour program?

We are revisiting feedback opportunities like Penny for Thoughts and will publicize the format and schedule once developed. Employees need not wait for these opportunities - members of the senior management team welcome your input and feedback at any time.