Operator Training Program at ALS: Recent Improvements

Workshop on Accelerator Operations
April 14, 2010

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Overview

- Berkeley Lab Advanced Light Source (ALS)
- Operator Training at the ALS: Overview
- Phases of Accelerator Operator Training
- Recent Improvements
- Training Committee Process
- Improving Communication
- Additional Focus

Berkeley Lab
Advanced Light Source

- **ALS Mission Statement:**

  "Support users in doing outstanding science in a safe environment."

- **Total ALS Staff:** *185*
- **Visiting Researchers/Users:**

  1900+ per year and growing

- **Construction Completed:** *March 1993*
- **Facility Dedicated:** *October 22, 1993*
- **ALS Website:** *www.als.lbl.gov*

Operator Training at the ALS: Overview

- **Comprised of**
  - Documented procedural training
  - Online and classroom training
  - On-the-job training
- **Goals for Employee**
  - Certainty and self-confidence while performing work.
  - Solid understanding of mandatory duties for working solo.
  - Ensure personnel safety.

Operator Training at the ALS: Overview (cont'd)

- Written Training procedure, including an *Operations Training Guide*.
- Training mentor to guide the process.
- Key training occurs during shutdown and/or start-up shifts (time needed to complete training dependent on ALS operational schedule).
- Troubleshooting beam losses provide invaluable learning opportunities for Accelerator Operators (unplanned and unpredictable).
- Feedback from trainees encouraged.

Operator Training at the ALS: Overview (cont'd)

- **Accelerator Operator (AO)**
  - Tasks and Training focused on the accelerator systems and equipment.
  - Preliminary AO training has taken from 8 to 24 months to complete, but efforts aim to reduce the training time to 6 months.
  - Qualified AOs have additional training needs, and proper experience is gained over time.
- **Floor Operator (FO)**
  - Tasks and Training focused on support and shielding control on the experimental floor.
  - FO training has taken 5 months to complete.
- **Cross-training employees to be qualified AO and FO**
  - Allows for scheduling flexibility.
  - 2 employees have completed training, 1 in progress
  - Challenges (schedule differences, split focus, retaining knowledge).

Phases of Accelerator Operator Training

- **Phase 1:**
  - The most basic, frequent tasks
  - Safety training
  - General LBNL-required training
  - Some background accelerator theory
- **Phase 2:**
  - More complex tasks
  - Subsystems of the accelerator
- **Phase 3:**
  - Most comprehensive procedures
  - Lesser used feedback and diagnostic procedures
- **Phase 4 (Post-qualification):**
  - Non-critical, infrequently used procedures
  - More accelerator theory (including courses via U.S. Particle Accelerator School)
  - Involvement in other ALS projects such as…..

Recent Improvements

- Greater attention to the training process since 2006
- Training Committee developed in 2009
  - To facilitate continuous review & improvements.
  - Implement & expand on ideas to improve training for the Operations Group.
    - **for new employees**
    - **ongoing re-training of current employees**
  - Seek input from ALL employees in discussion and attention to training needs.
  - Committee members: 3 operators, Operations Group Leader, Procedures Center administrator.

Training Committee Process

- **Encourage all operations staff participation in efforts to obtain the best results**
  - attend our meetings when feasible
  - provide input
  - take on tasks for the group effort
- **For each meeting, we have discussed:**
  - Operational training completion as a group
  - Ideas and concerns generated by the group
  - Tasks worked on between meetings (including input from other operations staff).
- **Main Focus: Competency and understanding of experienced operators forms the basis of training new employees**.

Improving Communication

- **Importance of improving communication**
  - Learn from each other
  - Learn from events that occur during time-off
  - Many operators work different hours than other employees.
- **Overlap of shifts allows time for verbal exchange and review of online log**
- **Encourage clear & complete online log entries**
- **Developing an ALS Wiki**
  - Resource for information not included in official procedures
  - Collection of Lessons Learned

Additional Focus

- Review & improvements of written *Operations Training Guide,* including a separate *Guide* for FO training.
- Updating the *Troubleshooting Guide.*
- Discuss how to increase training opportunities: simulations, use time on physics shifts
- Discuss staffing needs, AO/FO cross-training utilization, and future plans.

Thank you!