ENVIRONMENT, SAFETY & HEALTH DIVISION

Chapter 10: Laser Safety

Laser Worker Approval Procedure

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1   Purpose

The purpose of this procedure is to ensure that workers in *laser facilities* where Class 3B and Class 4 laser systems are in use are qualified. It covers approval of *laser workers*. It applies to workers, supervisors and points of contact (POCs), *system laser safety officers (SLSOs)*, the *laser safety officer (LSO)*, and Occupational Health.

Class 3B and Class 4 laser operation requires:

- Operation approval from the LSO

- A SLSO assigned responsibility for their safe operation

- A *lab-specific standard operating procedure (SOP)* document describing laser hazards and controls

- A *laser controlled area (LCA)* with access restricted to laser workers and persons they may escort, as described in the SOP, if there may be accessible Class 3B or Class 4 laser radiation. *(Note some lasers may be configured and approved only for Class 1 – Laser Enclosed operation, in which case an LCA may not be required.)*

(See Laser Safety: Class 3B and Class 4 Laser Operation Requirements for details.)

SLAC has two categories of *laser worker*:

1. *Qualified laser operator (QLO)*

2. *Laser controlled area (LCA) worker*

QLOs and LCA workers are generally approved for the laser facility where they will work and receive both general and facility/LCA-specific training so they can access an LCA and perform work there. (Some QLOs and LCA workers are unaffiliated with any facility; they receive general training only. This allows them to perform service work in any facility or to work at off-site, non-SLAC laser facilities.) QLOs receive additional training to become qualified to operate lasers and perform open beam alignment tasks. LCA workers are generally support personnel who need access to an LCA to perform work other than laser alignment tasks, for example to support accelerator or user facility laser operations.

- **Who does this?** Persons who need to perform work in an LCA that cannot be done under the laser controlled area visitor policy described in the SOP for the LCA (see Laser Safety: Laser Controlled Area Visitor Requirements)

- **When?** Before performing work that can only be done by QLOs and LCA workers

- **How?** As detailed in the procedure below, complete requirements for training and document review, and then request approval in the Laser Safety Tool. *(Note accessing this tool requires a SLAC*

Windows account, so all persons wanting to become a QLO or LCA worker should obtain a Windows account. There is a provision, however, for an SLSO or LSO to submit a request on behalf of a person who does not have a Windows account.)

2   Procedure

Step	Person	Action
1.	Worker	Determine whether you need to become a laser worker:
		▪ If you need to perform work in an LCA discuss with the SLSO whether you need to be a laser worker. *(Note it is a significant time investment to become a laser worker and for the SLSO to provide the required training and supervision.)*
		▪ If you may need to become a laser worker but not affiliated with a particular facility/LCA, contact the LSO to determine if this is necessary (for example, SLAC employees who may want to do laser work offsite).
2.	Worker	Get a SLAC system ID number if you do not have one. To verify you have a valid SLAC system ID, check the SLAC Directory.
		▪ If you do not have a SLAC system ID, ask your supervisor or point-of-contact (POC) to request one.
3.	Worker	Get a SLAC Windows account if you do not have one.
		▪ If you do not have a SLAC Windows account, a SLAC ServiceNow request can be submitted for this (follow instructions for "SLAC Computer Account Request"). Ask your supervisor/POC for assistance if needed.
		This allows you to access the
		▪ SLAC Training Course Catalog, which provides course descriptions and information on how to take the courses, including links for web-based training
		▪ SLAC Training Assignment (STA), which provides information on your training history and which courses your supervisor or point-of-contact has assigned you
		▪ Laser Safety Program Site, which has laser facility information, including links to SOP documents, and many other useful resources
		▪ Laser Safety Tool, where you can request approval to become a laser worker and can view database information for laser workers and laser facilities
		Note you can become a laser worker without having a Windows account; steps 4–11 below allow for that. A Windows account is recommended to facilitate your training and access to laser safety resources.
4.	Worker	Have your supervisor/POC assign required courses on your STA.
		All laser workers are required to complete the following courses:
		▪ ESH Course 253, Laser Worker Safety Training (2.5-hour web course)
		▪ ESH Course 253ME, Laser Worker Baseline Medical Exam (30-minute exam)
		▪ ESH Course 131, Laser Accidents and Lessons Learned (1.5-hour classroom course)
		▪ ESH Course 120, Work Planning and Control Overview (30-minute web course)

Step	Person	Action
		▪ ESH Course 219, Environmental Safety and Health Orientation (1-hour web course) For QLOs only: ▪ ESH Course 253PRA, Laser Alignment Safety Practical (1–3 hour classroom course)
5.	Worker	Review Chapter 10, "Laser Safety"
6.	Worker	Complete course training assignments listed above in step 4. ▪ Transfer credit for the 253 and 253PRA courses. Transfer credit for equivalent courses at other facilities can be approved by the SLAC LSO for courses listed in a training equivalency document on the Laser Safety Program Site. To transfer credit, course completion documentation must be sent to the SLAC LSO. ▪ The web-based courses are accessible from the SLAC Training Course Catalog if you have a Windows account. If you do not have a Windows account or want to take a web course remotely, follow directions for "Manual Login" at SLAC Training: Web Based Training. ▪ For 253ME, contact the Occupational Health Center to schedule an appointment. (You should schedule this at least one week in advance.) ▪ For 131, this course is given by the LSO. It is scheduled monthly, usually on the first Monday of each month at 2:30–4 pm in B28, RM141. You can register for the class at the course catalog web page, or you can contact the LSO to find when the next class is scheduled. Typically, 1–2 additional classes per month are also scheduled as needed. *Note in some cases, conditional approval to become a laser worker can be granted before this course is completed. This requires a justification, that the person take the next available class, and that the laser worker be supervised until the course is completed; then a 30-day conditional approval can be given after which the person will become inactive if the course is not completed.* ▪ For 253PRA, contact the SLSO for the appropriate laser facility/LCA and make arrangements with him or her to take the class or to discuss transfer credit, if applicable. (If you are requesting to be an unaffiliated QLO, contact the LSO.)
7.	Worker	Review the SOP document(s) for the relevant laser facility/LCA. ▪ These are accessible from the Laser Safety Program Site and are also available at the facility/LCA. If needed you can contact the SLSO for how to access. ▪ Skip this step, if you will request to become a laser worker but not associated with a particular facility/LCA.
8.	Worker	Interview with LSO. ▪ If you are requesting to become a laser worker for the first time you need to schedule a 30-minute interview with the LSO. The interview will review features for the different laser classifications (1, 2, 3R, 3B and 4), responsibilities for laser workers, and what to expect for site-specific *on-the-job training (OJT)*.
9.	Worker	Request approval to be a laser worker.

Step	Person	Action
		▪ Go to Laser Worker Approval. This requires a Windows account to access. If you do not have a Windows account, you can ask the SLSO to submit the request on your behalf.
		▪ You will need to enter the following information:
		▪ Type of Work (QLO or LCA worker)
		▪ Facility Name (select "None" if requesting to be an unaffiliated QLO or LCA worker; otherwise select the appropriate facility)
		▪ Preferred Email, if different from SLAC email or if you do not have a SLAC email
		▪ SLAC Affiliation (employee, undergraduate student, graduate student, other non-employee)
		▪ Have read Chapter 10, "Laser Safety" and accept responsibilities
		▪ Have read and agree to comply with Laser Safety: Student Requirements, if applicable
		▪ Have read and understood the lab-specific SOP ("facility SOP"), if applicable
		▪ The approval tool will query the SLAC Training Database and display information on STA course assignments and course completion status. *(Note STA course assignments shown on this web page are for information only and do not affect approval.)*
		▪ Select "Submit Request" once the necessary information has been entered. If a requirement has not been met, you will receive a message that the request is denied and a reason will be given describing the action you need to take.
		▪ If you have completed the necessary requirements, then an e-mail notification will be sent to the LSO, your administrative supervisor/POC, and the SLSO (if applicable) that a laser worker request needs their review and action. You will be copied on the e-mail.
10.	LSO, supervisor/POC, and SLSO (if applicable)	Review request.
		▪ If the LSO, your administrative supervisor/POC, and the SLSO (if applicable) all approve the request, then you have completed approval as a laser worker and your information will be entered into the Laser Safety Tool database. You will be sent an associated notification e-mail.
		▪ If any of the LSO, your administrative supervisor/POC, or the SLSO (if applicable) deny the request, a reason for the denial will be provided. You will be sent an associated e-mail notification.
11.	Worker	Complete site-specific OJT (if applicable)
		▪ This is done with the SLSO, or a QLO they designate, at the laser facility/LCA. The OJT will be documented and the SLSO maintains the documentation for that in the Laser Safety Tool database.
		▪ The SLSO determines approved activities for the worker and documents this in an OJT Summary Table in the Laser Safety Tool database.

3   Forms

The following forms and systems are required by this procedure:

- Laser Worker Approval. Documents approvals for QLOs and LCA workers and must be completed before a QLO or LCA worker begins work with Class 3B and Class 4 lasers

- Site-specific training documentation for QLOs and LCA workers. An example template for an OJT syllabus is available on the Laser Safety Program Site (SharePoint). A laser facility's OJT syllabus is posted on its SharePoint site, while worker-specific OJT documentation is done by the SLSO for their facility using the Laser Safety Tool database

4   Recordkeeping

The following recordkeeping requirements apply for this procedure:

- Worker and facility approval records are maintained in the Laser Safety Tool

- The SLSO maintains OJT documentation for the lab's QLOs and LCA workers in the Laser Safety Tool

5   References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 10, "Laser Safety"

  – Laser Safety: Class 3B and Class 4 Laser Operation Requirements (SLAC-I-730-0A05S-004)

  – Laser Safety: Laser Controlled Area Visitor Requirements (SLAC-I-730-0A05S-011)

  – Laser Safety: Student Requirements (SLAC-I-730-0A05S-002)

  – Laser Safety Program Site (SharePoint)

  – Laser Safety Tool

Other SLAC Documents

- SLAC Occupational Health Center

- SLAC Directory

- SLAC ServiceNow

- SLAC Training Assignment (STA)

- SLAC Training Course Catalog

- SLAC Training: Web Based Training

- SLAC Trainer Guide >Transferring Credit From Another Institution

- ESH Course 219, Environmental Safety and Health Orientation (ESH Course 219)

- ESH Course 120, Work Planning and Control Overview (ESH Course 120)

- ESH Course 131, Laser Accidents and Lessons Learned ([ESH Course 131](#))

- ESH Course 253, Laser Worker Safety Training ([ESH Course 253](#))

- ESH Course 253ME, Laser Worker Baseline Medical Exam ([ESH Course 253ME](#))

- ESH Course 253PRA, Laser Alignment Safety Practical ([ESH Course 253PRA](#))