NIH Policy Manual

3036 - NIH Laser Safety Program

Issuing Office: OD/OM/ORS/SR/DOHS **Phone:** (301) 496-2960

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Transmittal Notice

1. **Explanation of Material Transmitted:** This chapter describes the National Institutes of Health (NIH) Laser Safety Program (LSP). The NIH LSP was developed to provide guidance and oversight for the safe use of lasers at NIH. This issuance meets the three years revision requirement for the series.
2. **Filing Instructions**

   Remove: NIH Policy Manual, Chapter 3036, dated 04/07/2016

   Insert: NIH Policy Manual, Chapter 3036, dated 03/03/2020

PLEASE NOTE: For information on:

- Content of this chapter, contact the issuing office listed above.
- NIH Policy Manual, contact the Division of Management Support, OMA on 301-496-4606, or enter this URL:https://oma.od.nih.gov/DMS/Pages/Manual-Chapters.aspx.

A. Purpose

This chapter describes and establishes requirements for the use of lasers at NIH.

B. Scope

The policy in this chapter applies to all NIH employees, contractors, trainees, and others working directly with or around Class 3B and Class 4 lasers and laser systems at official NIH facilities, hereinafter referred to as lasers.

C. Background

Over time, the applications for lasers in biomedical research and in clinical treatments have grown exponentially. This spectrum is on display at NIH, with lasers in use from optical imaging, where super-resolution microscopy can pinpoint single molecules, to laser therapies of the eye, where laser treatments may help reduce the probability of vision loss in some

patients.

As the number of novel techniques involving lasers grows, so too does the number of personnel who work directly with or around lasers; the majority of institutes at NIH use lasers. Full realization of the benefits of lasers necessitates their safe use by everyone.

D. Policy

The NIH Laser Safety Program (LSP) was established to minimize hazards associated with the use of lasers. It was developed to align with the American National Standards Institute (ANSI) Z136 series of standards in addition to other consensus guidelines. The instructions outlined herein shall not be intended to restrict or limit the use of laser radiation, which may be intentionally administered to an individual for healthcare applications, including diagnostic, aesthetic, preventative, therapeutic, or medical/dental research.

E. Responsibilities

1. Director, NIH

   Through the Division of Occupational Health and Safety (DOHS) and the Deputy Director for Intramural Research (DDIR), provide executive leadership in the development and implementation of biological safety policies, standards and procedures applicable to the NIH. The DOHS provides staff necessary to administer a comprehensive occupational safety and health program.

2. Deputy Director for Intramural Research (DDIR)

   a. The DDIR is the principal liaison with the NIH intramural research community regarding safety and health matters.
   b. Receives safety policies approved by ORS and communicates them to the IC Scientific Directors.
   c. Raises safety concerns to ORS as they are brought to the DDIR's attention from the intramural research community.

3. Designated Agency Safety and Health Official (DASHO)

   a. The Institutional Official responsible for management and administration of the NIH occupational safety and health program. This authority is delegated by the Director, NIH.

4. Laser Safety Advisory Committee (LSAC)

   a. Ensure continuous improvement by annual review and updates if necessary, to the written Laser Safety Program policy, as well as this NIH Policy Manual chapter.
   b. Maintain an accurate inventory of Class 3B and Class 4 lasers in NIH facilities.

c. Verify safety practices and control methods in place for personnel using lasers.
d. Investigate all near-misses and incidents involving the use of lasers in NIH facilities.
e. Meet quarterly, or more often as required, to carry out the duties as listed above.

5. Laser Safety Officer (LSO)

a. Assists with laser hazard evaluation and classification.
b. Provides and/or facilitate laser safety training.
c. Determines required safety practices and control measures critical for the implementation of a laser laboratory as specified by ANSI Z136.1 – 2014 American National Standard for Safe Use of Lasers and compliance with applicable laws and regulations.
d. Consults on the purchase of necessary laser safety materials (signs, labels, safety eyewear, etc.).
e. Monitors and enforces program requirements.
f. Conducts periodic reviews of the NIH LSP.

6. Deputy Laser Safety Officer (DLSO)

a. Assists the LSO with the performance of his or her duties.
b. Carries out the duties of the LSO when delegated.

7. Supervisors/Principal Investigators (PIs)

a. Register new lasers online at https://go.usa.gov/xReGv (accessible to users connected to the NIH network).
b. Identify all laser hazards and implement all appropriate hazard controls. Correct any unsafe or non-compliant conditions in the laboratory.
c. Identify all personnel who may operate, maintain, or work in close proximity to lasers and ensure training is completed at intervals specified by the LSP.
d. Monitor all authorized personnel for compliance with the LSP.
e. Ensure maintenance is conducted at proper intervals to keep lasers in safe working order.
f. Maintain a copy of this written program in the workplace.
g. Complete a Standard Operating Procedure (SOP) for each laser and location (lasers which share substantially similar procedures and/or locations can be combined into one SOP). SOPs shall be kept in locations so that personnel have access before entry into a Laser Controlled Area (LCA).

8. Laser Users

a. Know all hazards and associated procedures for the safe use of lasers in the work area.
b. Complete required training(s) as specified by a supervisor/PI, LSO, or the LSAC.
c. Comply with the LSP and use good safety practices.

d. Use all personal protective equipment as specified in prescribed training or required by a supervisor/PI, LSO, or the LSAC.
e. Immediately notify a supervisor/PI, LSO, or the LSAC of any hazards encountered

F. Procedures

Depending on the classification, set-up, and use, a variety of laser hazard control measures may be warranted. The control measures follow a preferred hierarchy, to include engineering controls, administrative controls, and personal protective equipment. While beam hazards are the most obvious concern associated with laser use, non-beam hazards are equally or perhaps even more important, as they have the potential for greater harm if not properly addressed.

To assist with laser hazard control measures, DOHS has designated an LSO and DLSO, who are ready and willing to work with the research community to keep personnel safe while preserving research methods and goals. Additionally, the LSAC, with representatives from many ICs, can provide further expertise and assistance. Laser users and supervisors shall engage with these resource personnel from the outset at the time of laser acquisition, periodically through the completion of laser safety surveys, and as needed when questions arise, or near-misses or accidents occur.

G. References

1. NIH Policy Manual, Chapter 1743 *Keeping and Destroying Records*, available at: https://policymanual.nih.gov/1743
2. NIH Delegations of Authority, available at: https://delegations.nih.gov/

Appendix 1: NIH Laser Safety Program

The full written NIH Laser Safety Program document contains the detailed procedures for research personnel using lasers to follow. The document is co-written and annually updated by the LSO, DLSO, and LSAC. The most recent version is available on the DOHS webpage at: https://www.ors.od.nih.gov/sr/dohs/safety/laboratory/Pages/laser_safety.aspx