

Hazard Analysis, Mitigation, and Operating Procedures for (Laser name) Laser

Prepared by:

Date:

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1. General Information (laser system and contact person information)

Name of PI:		
Title of PI:		
Location of laser:		
Laser use duration:	From:	To:

Laser Safety Contacts:

Laser Safety Officer	M. Jo	784-4540
Person responsible for laser:		

2. Laser information

	Laser 1
Laser type (active medium):	
Laser class:	
Wavelength (nm):	
Max. Output (J, W):	
CW/pulsed:	
Pulse duration (s):	
Pulse repetition rate (Hz):	
Beam diameter (mm):	
Beam divergence (mrad):	
Manufacturer:	
Model:	
Serial#:	

3. Laser user information

Name	Office location	Date of laser safety training	phone #	e-mail address

4. Laser facility map

5. Description of activity (purpose of laser use)

6. Hazards identification

Laser beam hazards:

	Eye	Skin	Fire
Intrabeam:			
Specular Reflection:			
Diffused reflection:			

Non-beam hazards:

Electrical hazards		Laser dye and solvents	
Laser generated Air contaminants		Mechanical hazards	
Collateral and plasma radiation		Noise	
Fire hazards		Waste disposal	
Explosion hazards		Confined space	
Compressed gas		Ergonomics	

7. Hazards mitigation

Laser Control Summary

Control measures required for 3b & 4	Yes/No, Comments
Protective Housing	
Interlocks on Protective Housing	
Key Control *	
Entryway Interlock*	
Beam Stops and Attenuators*	
Activation Warning Systems*	
Laser Control Area Establishment	
Laser Warning Labels in Equipment	
Area Posting	
Standard Operating Procedure*	
Education & Training Requirements	
Authorized Personnel Requirements	
Alignment Procedure	
Spectators Policy*	
Eye Protection Equipment*	
Protective Windows	
Protective Barriers and Curtains*	
Skin Protection	
Service and Repair Personnel Policy	

* Required for class 4. Recommended but not required for class 3b

To reduce hazards associated with the operations of this laser the following control measures are implemented.

7.1 Training

All personnel who operate or work around the laser during laser operation receive appropriate training.

7.2 Access controls

Entrance to the laser facility is controlled and only authorized laser personnel are allowed to enter during the laser operation.

7.3 Laser equipment control

The laser power supply has an on and off key switch. The key is removed when the laser is not in operation. Only authorized personnel are allowed the key and to operate the laser.

7.4 Laser beam controls

- Laser beam is confined to the optical table or predetermined beam path.
- Laser beam is terminated at the end of its useful paths.
- Laser beam paths are designed, when possible, to avoid eye level while standing or sitting down.
- Laser beam paths are enclosed where possible.
- Beam stops are recommended for this laser.
- Materials used in the laser facility will be non reflective where practical.
- Engineering controls are used where possible.
- Objects with shiny surfaces such as a watch, ring, or other jewelry are not allowed in the laser area during laser operation.
- Laser workers are informed laser beam is above MPE for skin and instructed to avoid skin exposure to laser beam.
- Recommend long sleeve shirts and pants.
- Avoid or minimize combustible materials in laser beam path or near.

7.5 Laser warning signs and lights

- Laser warning signs are posted at entry way of the laser facility.
- Laser warning lights are activated when the laser power is on.
- All laser equipment must bear appropriate laser warning labels.

7.6 Personnel protective equipment

Wearing Laser Safety Goggle during laser operation is required for this laser.

7.7 Optical density (OD) requirements for laser safety goggles

OD	Wavelength	Comment

8. Non-beam hazards and mitigation