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# LLNL Laser Operations Safety Audit Form

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Laser Safety Officer Workshop
Brookhaven, NY, United States
July 11, 2006 through July 13, 2006

**Laser Operations Safety Audit Form** Form rev. 02/06

Auditor (LSO/DLSO/Other) _____ IWS/SP # _____ Audit Date: _____

Type of Audit: ☐ Annual ☐ New ☐ Amend ☐ Self-Assessment Other

Facility Name: _____ Building: _____ Rooms: _____

Responsible Individual: _____

Room Contact During Audit: _____

**Classes of Lasers in this experiment/rooms:** ☐ Class 4 ☐ Class 3b ☐ Class 3a ☐ Class 2 ☐ Class 1 embedded

| | | | | | | Recommended Compliance Code |
|---|---|---|---|---|---|---|
| **Posted Documentation and Security Measures** | | | | | | |
| 1. Access door interlocks & status panel functional: ☐ Key ☐ Code Comments: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.02 |
| 2. Access door signs current format, emergency contact current: Comments: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.08 |
| 3. Posting on ancillary doors: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.08 |
| 4. Current IWS/SP available: | ☐ Y | ☐ N | ☐ NA | M-ES-PP.03 |
| 5. Eyewear requirements posted: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.02 |
| 6. Interlock check sheet available & current : | ☐ Y | ☐ N | ☐ NA | S-IS-LA.09 |
| 7. Alignment procedure (class 3b & 4): | ☐ Y | ☐ N | ☐ NA | S-IS-LA.10 |
| 8. Interlock check procedures available for complicated systems: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.09 |
| 9. Are two or more Class 3B lasers operation at different wavelengths: | ☐ Y | ☐ N | ☐ NA | N/A |
| 10. If so, is it addressed in an IWS/SP: | ☐ Y | ☐ N | ☐ NA | M-ES-PP.02 |
| **Laser unit safety controls:** | | | | |
| 11. Laser classification labels present on commercial units: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.12 |
| 12. Protective housings in place: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 13. Beam shutters interlocked &functioning as per interlock check sheet: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.02 |
| 14. Interlock bypass functioning (≤15 seconds): | ☐ Y | ☐ N | ☐ NA | S-IS-LA.02 |
| **Engineering and Administrative Laser Safety Controls:** | | | | |
| 15. Lasers & optics secured to table: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.17 |
| 16. Beam properly contained (Not a hazard to persons sitting or standing): | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 17. Beams enclosed where available: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 18. Noncombustible, non-specular beam barriers in place: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 19. Evidence of laser burn marks, if so how extensive: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 20. Adequate controls where beams leave tables or leave enclosures: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 21. All beams attenuated or low power when practical: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 22. Windows/door openings covered: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.13 |
| 23. Beams blocked from open by-passed doors: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.14 |
| 24. Non-essential reflective materials out of beam paths & surroundings: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 25. Administrative controls employed, barriers, demarcated: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.01 |
| 26. Upward directed beams are labeled: | ☐ Y | ☐ N | ☐ NA | S-IS-LA.15 |

**Other Safety Measures**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 27. | Laser eye exams by all personnel (3b and 4 lasers): | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.16 |
| 28. | Proper eyewear available for all personnel, ODs OK?: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.03 |
| 29. | Does one pair of eyewear cover all wavelengths?: | ☐ | Y | ☐ | N | ☐ | NA | N/A |
| 30. | Are separate pairs of eyewear used for different wavelengths?: | ☐ | Y | ☐ | N | ☐ | NA | N/A |
| 31. | Proper storage of eyewear, where?: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.18 |
| 32. | Proper skin protection available & employed: | ☐ | Y | ☐ | N | ☐ | NA | M-ES-GE.05 |
| 33. | Have workers completed required training?: | ☐ | Y | ☐ | N | ☐ | NA | M-ES-TR.01 |
| 34. | Have workers completed and documented OJT for laser alignment work? | ☐ | Y | ☐ | N | ☐ | NA | M-ES-TR.01 |
| 35. | Have workers acknowledged the read and sign section of the IWS?: | ☐ | Y | ☐ | N | ☐ | NA | M-ES-PP.00 |
| 36. | Collecting optics used (microscopes, binoculars, telescopes): | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.19 |

**Non-beam Hazards:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 37. | High voltage hazards minimized: | ☐ | Y | ☐ | N | ☐ | NA | N/A |
| 38. | Optical tables bonded to building ground: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.05 |
| 39. | Optical Tables seismically secured: (if no, how many?): | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.20 |
| 40. | Housekeeping fire hazards minimized: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.01 |
| 41. | Good housekeeping on optical tables: | ☐ | Y | ☐ | N | ☐ | NA | M-ES-GE.01 |
| 42. | Fiber optic use: | ☐ | Y | ☐ | N | ☐ | NA | M-ES-GE.01 |
| 43. | Container for fiber sharps: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.21 |
| 44. | Fiber ends/connectors labeled: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.22 |
| 45. | Fiber conduit labeled: | ☐ | Y | ☐ | N | ☐ | NA | S-IS-LA.22 |
| 46. | Other non-beam hazards minimized: | ☐ | Y | ☐ | N | ☐ | NA | N/A |

Comments:

Auditor/LSO/DLSO signature _____ Date _____