

Sample Standard Operating Procedure

Nd:YAG Laser Marker



I. Scope

- A. This procedure applies to maintenance activities in which there is potential access to laser radiation. This can only occur if the outer doors of the process equipment are opened, interlocks are bypassed, and the laser is energized. This situation will not normally occur but could be allowed during maintenance activities in which it is desirable to apply marks to products. This situation is allowed only with the direct approval of the LSO.

II. Responsibilities

- A. _____ is responsible for the safety of this laboratory operation in conformance with this Standard Operating Procedure (SOP). In his/her absence, _____ shall assume these responsibilities.
- B. Only trained laboratory personnel and maintenance personnel from manufacturers may energize the laser or laser system

III. Laser Descriptions

- A. Video Jet model DN 50 A Nd:YAG laser marker system. This is a class 1 laser system with an embedded class 4 laser.
- Wavelength: 1.064 μ m
 - Pulse Duration: 70 ns
 - Pulse Repetition Rate: 10,000 Hz
 - Average Power: 50 W
 - Beam Diameter: 2 mm
 - Beam Divergence: 2 mrad

IV. Hazards

- A. Eye hazard from direct, reflected or scattered beam.
- B. Skin hazard and fire hazard.
- C. Electrical hazard inside power supply.
- D. Laser Generated Air Contaminants.

V. Control Measures

- A. Establish Laser Controlled Area using laser barrier and warning signs. Approved laser safety eyewear with OD $\geq 5.0@1064\text{nm}$ is required for all personnel inside the controlled area. The laser will be operated only with the inner beam enclosures in place for normal marking. No beam alignment will be performed with interlocks defeated. Mark position is adjusted with computer control during class 1 operation.
- B. Since the laser is never operated with the inner covers removed, there is no access to skin or fire hazards.
- C. Mechanical hazards associated with this equipment are addressed in the equipment manual. All maintenance personnel should be familiar with safe operations.
- D. When functioning normally, the exhaust system will remove all LGACs even with the doors open. Notify the LSO if you think there might be a problem.

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	University of Wyoming Safety
	Web: www.uwyo.edu/safety/
	Phone: (307) 766-3277
	Email: uwehs@uwyo.edu
	Regulated Materials Management Center
	Phone: (307)766-3698 Fax: (307)766-3699
	Email: HAZMAT@uwyo.edu

VI. Training

- A. Individuals who use this equipment are required to take the UW EHS Laser Safety Class and shall be trained to recognize the intrinsic hazards, are aware of basic safety information that relates to their job duties, and know the safe operating requirement for this activity.
- B. All operating personnel shall read and understand this standard operating procedure (SOP) and all applicable references stated in this SOP. Signatures of all authorized operators are required at the end of this SOP.

VII. Emergency Procedures

- 1. In an event of a laser emergency, turn off all lasers and notify the Laser Safety Officer.
- 2. In an event of fire or other emergency, evacuate and notify the UW Police department by dialing 911.

VIII. Additional Safety Measures
