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PHYSICS DEPARTMENT		Effective: 08/12/2004	Page 1 of 2
Subject: ATF CO ₂ Laser System Piter I Operations, Maintenance and Alignment Safety Instructions		Prepared by: Igor Pogorelsky	
Reviewed by ES&H Coordinator: 	Approved by ATF Head: 	Approved by/Department Chair: 	

ATF CO₂ LASER SYSTEM PITER I OPERATIONS, MAINTENANCE AND ALIGNMENT SAFETY INSTRUCTIONS

GENERAL: The present document outlines safety measures to be taken while performing operation, alignment and maintenance on the ATF CO₂ laser system PITER I. For detailed step-by-step technical instructions on the aforementioned procedures consult ATF documents ATF-0015, ATF-0016 and ATF-0017

WARNING:

An authorized CO₂ laser operator only can operate and align the ATF CO₂ laser system. Maintenance can be performed by any technical person with the appropriate general training under the guidance of the CO₂ laser operator. A list of qualified ATF CO₂ laser operators is posted in the ATF Control Room and in the ATF CO₂ Laser Room C2.

Appropriate laser safety goggles certified for PITER I laser shall be worn all the time when rooms C1 and C2 are interlocked, lasers are powered, and laser interlock shutters are activated.

In preparation to the system operation:

1. Fill the amplifier discharge cells with gas according to specifications. Fill spark gaps of the amplifier PFN's with synthetic air according to the labeling on the gas distribution panels. Pay attention to not exceeding the specified maximum pressure. Do not rely entirely on relief and check valves, which are installed to prevent over-pressurizing.
2. Obtain the CO₂ LASER SHUTTER KEY (#5) and YAG TO CO₂ KEY (#3) from the key box in the Control room Sign out the keys in the key log book. Sign in keys upon their return to the key box.
3. Follow the search and secure procedures for the rooms as specified in the document PO-P-0026. Verify status of room security and laser shutters by checking indicators on the MCR laser interlock panels.

During operation and alignment:

1. Do not look into the beam.
2. Reduce exposure to specula and diffuse reflected light by controlling the beam path (no foreign objects in the beam) and using beam enclosures where possible
3. Do not leave laser unattended while it is working and shutters are open. Do not leave high

1. voltage potentials on when laser is idle and not attended, even if rooms are left interlocked.
2. Switching from alignment to operation, pay attention that all the elements are returned to normal working positions including, orientation of waveplates. Improper setting may result in excessive output signals within regenerative amplifier and damage of optics and detectors. (Note, that the final output is defined by the amplifier capabilities and will not exceed 20 J under any circumstances.)
3. Operating PITER I system for user's experiments, do not open CO2-TO EXP.HALL shutter until the personnel and equipment are ready to handle the beam. Do not allow untrained people to be present in laser rooms and Experiment Hall while PITER I is in operation and laser shutter is open.

Doing maintenance:

1. Apply LOTO to the appropriate AC power box when performing maintenance that involves removing interlocked enclosures or covers over high-voltage power supplies. Do not remove LOTO and operate power supplies without installing all the padlocks on the covers.
2. Immediately after opening the PFN enclosure top lead, use grounding pole to make sure that no residual electrical potential exists on the exposed high voltage contacts.
3. Avoid and properly handle spills when emptying or refill transformer oil to the PFN.
4. Maintain records and check a date on a sticker for a regular amplifier vessel inspection.

Revision Log Table

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