

Benchmark LOTO summary

	Do you apply LOTO to laser energy?	What is the basis/driver for your LOTO program?	Is there a threshold for when LOTO is required?	What control methods are implemented?
Jefferson Lab	No - Normal operations			Rely on laser personnel safety system, smart cards and codes
	Yes - Maintenance			Locking and tagging out a shutter or power supply for laser
	Yes - Special cases: experimental hall		For non-laser trained technicians	Locking out the laser power supply
Sandia Lab	No			Control spaces and beam path
SLAC	Yes	OSHA Control of Hazardous Energy (CoHE)	Laser energy above threshold for applicability of OSHA's CoHE requirements	Machine guarding (Lockout devices: blank flange, bolted slip blind), employ LOTO occasionally for laser transport lines which transport beam to an uncontrolled area Use combination of engineering controls (such as barriers and fixed guards, interlocks for moveable equipment guard devices, key control), warning and alert systems, administrative controls, and personal protective equipment
LLNL	Yes		Mandatory for NIF	Power supplies "key tree" – utilizing Safety Interlock System to apply the lock
	No – for smaller labs			
	Yes - for maintenance		For lasers that transmit from one room to another	Power supplies or shutters
	Proposal to LOTO		For Lasers 15 kW average power or more	

Idaho National Lab	Yes – to all laser systems	Subpart J, 1910.147, CoHE and NFPA 70E Alternative controls are based on 1910 Subpart O, Machine Guarding	Whenever there is potential for contact with a hazardous energy source.	Most often the LOTO is applied to control electrical, mechanical motion, pneumatic pressure or similar sources
National Energy Technology Laboratory	No			Alternative control methods and key control, LOTO for electrical hazard
Argonne National Laboratories	No	Need to secure a laser from unauthorized operation		Alternative control methods: Software/password, power outlet with a key control, plug cover (like used in LOTO) with a non-LOTO paddle lock, a very small paddle lock through a hole in the prong of a power cable, keypad entry or a prox-card system
National Security Campus, NNSA Honeywell FM&T Kansas City Plant	Four LOTO energy sources common to most of laser systems (welders, drillers, cutters & markers) used by Production			Electrical energy – No under 50 volts Inert gas pressure – No under 30 psig Water – No under 100 psig Water temperature – No ranging between 35°F and 100°F Energy sources above these ratings cause LOTO procedures to be implemented
Pacific Northwest National Laboratory	Seldom, most systems are "cord and plug"	OSHA 29 CFR 1910.147 and 10 CFR 851	selected if not a plug and cord and potential hazard presented to staff	Typically, at the electrical disconnect and assurances that capacitors have been discharged and grounded
LBNL	No			Alternative control methods and key control, LOTO for electrical hazard