

February 3, 2011

DOE Laser EFCOG: Results from Construction Work Questionnaire

This note summarizes results from a questionnaire sent to the DOE Laser EFCOG Working Group in November, 2010. Nine labs provided responses: Argonne, Brookhaven, JLAB, Kansas City Plant, LANL, LBNL, LLNL, NREL and SLAC.

Laser operation in construction work has to adhere to OSHA 1926.54¹ requirements as well as requirements in ANSI Z136.1. Requirements in the OSHA regulation include:

- i. Laser operators have appropriate laser safety training
- ii. No unattended operation
- iii. Area posting sign

These OSHA requirements apply in principle to all classes of lasers. However, violations of these requirements are considered “de minimus” (ie. no citation and no penalty) for Class 1 lasers.²

Question		Response
1. How is laser safety reviewed for construction work at this DOE facility?	Is there a safety review checklist that includes laser safety?	Yes: 5 No: 4
	Who completes the safety review checklist?	Subcontractor: 3 Line Mgmt (project mgr or POC): 1 Construction safety engr: 1 N/A: 4
	Does the subcontractor identify what lasers will be used and what their controls will be?	Yes: 5 No: 0 Sometimes: 1 Not stated or other comments: 3
	Is the subcontractor told what laser safety controls are required?	Yes: 3 No: 0 Sometimes: 1 Yes, if subcontractor doesn't know or if proposed controls inadequate: 2 Not stated or other comments: 3

¹ OSHA 1926.54 requirements; see http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10627

² OSHA 1926.54 interpretations; see http://osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=INTERPRETATIONS&p_toc_level=3&p_keyvalue=1926.54&p_status=CURRENT

Question		Response
<p>2. Low power Class 2 and 3R lasers are common in construction work, and lasers used for alignment or surveying are not permitted to be Class 3B or Class 4. But the OSHA regulation does not specifically prohibit use of high power Class 3B or Class 4 lasers.</p>	<p>Has construction work at this DOE facility used Class 3B or Class 4 lasers? If yes give short description, including review/approval process used and whether subcontractor has an LSO.</p>	<p>Yes: 0 No (or not aware of any): 9</p>
	<p>Is there a threshold in the review process for construction work that would identify use of Class 3B or Class 4 lasers? If identified, is LSO notified?</p>	<p>Yes: 3 No (or not clearly stated): 6 If yes, is LSO notified? Yes: 3 No: 0</p>
<p>3. Does your DOE facility provide any laser safety awareness training to construction personnel? If yes, describe briefly.</p>		<p>Yes: 2 No: 4 Informal or available, but not required: 2 No, but would address if training does not available: 1</p>

Question		Response
4. How is laser safety monitored in construction work?	Who monitors laser safety for construction work?	ESH (const. safety engr or tech. rep.): 5 Line ESH coordinator: 1 Subcontractor (self regulates): 1 LSO sometimes: 1 Not stated: 1
	Does the person doing the monitoring know the laser safety requirements?	Yes: 5 No: 0 No special training or maybe: 2 Subcontractor responsible: 1 Not stated: 1
	Provide any observations regarding laser safety training, including documentation for this, for laser operators.	No observations: 6 Not sure what's meant: 1 <ul style="list-style-type: none"> Subcontractors indicate they read the manual or that laser safety is "skill of the trade" Planning to implement checklist and formalize safety awareness training
	Provide any observations regarding unattended laser operation.	No observations: 5 Unsure what's meant: 1 <ul style="list-style-type: none"> No unattended operation observed Not (generally) permitted Responsible person is in area
	Provide any observations on area posting signs and whether they comply with ANSI Z136.1 requirements.	No observations: 4 Unsure what's meant: 1 <ul style="list-style-type: none"> Postings comply: 2 Postings are required Site office observed an incorrect posting, which was fixed
5. Are there any performance metrics for evaluating laser use in construction work?	List any performance metrics used	No performance metrics are used by any of the 9 labs
	Who completes or reviews these performance metrics?	

Question		Response
6. What role does the DOE facility's LSO have for laser safety in construction work?	Does the LSO review any laser safety construction work?	Yes: 0 No: 3 Sometimes: 1 Only if asked: 1 If identified in safety plan: 1 Generally no: 3
	How often has the LSO been asked to review laser safety in a construction project?	Frequently (mostly by phone): 1 1-2/yr: 4 <1/yr: 2 Never: 2
	Does the LSO visit any construction sites to monitor laser safety practices? If yes, how many times in last year?	Yes: 1 No: 7 Sometimes: 1 • Yes response indicated 5-10 visits per year
	Does the LSO do any evaluation of laser safety in construction work, for example to review any performance metrics?	Yes: 0 No: 8 Sometimes: 1
7. Has your site office raised concerns or questions about laser construction safety?	Yes: 1 No: 5 • Questions yes, but concerns no: 1 • Once, added a checklist item: 1 • Observed incorrect posting that was fixed: 1	
8. Any other input	<ul style="list-style-type: none"> • Argonne: formalizing requirements as part of laser safety program, in progress • JLAB: very little awareness of laser safety by subcontractors, but they are interested and willing to comply. Since these lasers are sold at Home Depot, subcontractors assume safe to use. • LBNL: aware of 3B/4 product for SF6 leak detection at electrical boxes, but not aware of any in use. • LLNL: Class 2/3R exempt from controls in ESH manual • SLAC: Class 2/3R requirements included in Work Planning Control; update to ESH manual in progress to include – uses 1926.54 requirements for construction; for other 2/3R use, makes 	

	these recommendations (training, no unattended and area posting sign)
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