

Photon Sciences OHSAS Job Risk Assessment

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Job Step / Task	Hazard	Before Controls						Initial Controls	After Initial Controls					Control(s) Added to Reduce Risk	After Additional Controls				
		Stressors Y/N	# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD		# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD		# of People A	Frequency B	Severity C	Likelihood D	Risk* AxBxCxD
Radiation levels are evaluated in occupiable areas under various operating conditions	Unexpected radiation exposure resulting from uncontrolled radiation levels	N	3	2	5	4	120	Work planning, pre-job briefing, monitoring, procedures, shielding, interlocks, Beamline review, configuration control	1	2	3	2	12						
Radiation levels are evaluated in occupiable areas under various operating conditions	Injury or fire resulting from equipment malfunction from improper operation during commissioning or fault study. ^A	N	1	3	3	3	27	Work planning, pre-job briefing, operator or tech instruction to ensure understanding of equipment limiting parameters	1	3	3	2	18						
Operation of beam position flags (insertion into the electron beam)	Unusual radiation levels caused by scatter off of the flag.	N	1	5	3	3	45	Surveys, shielding, procedures	1	5	3	2	30						
RF leaks from klystrons and other RF systems	See PS-JRA-0031																		
Compressed gas use	See LS-JRA-0009																		
Magnetic fields	See LS-JRA-0032																		
Eddy currents from pulsed magnets	Electric Shock	N	1	2	3	4	24	Controlled access to enclosures, proper equipment design	1	2	3	1	6						

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Operation of disconnects and circuit breakers	Electrocution	N	1	3	5	5	75	Proper grounding, proper equipment design (NRTL approved)	1	3	5	1	15						
	Electrical Shock	N	1	3	3	5	45	Proper grounding, proper equipment design (NRTL approved)	1	3	3	1	9						
	Arc Flash	N	1	3	5	5	75	Training, proper grounding, proper equipment design (NRTL approved), NFPA 70E compliant PPE, standards & procedures	1	3	4	1	12						
<p>Comments: A: Commissioning activities sometimes result in unusual operating parameters which must be evaluated to ensure that components are run within allowable limits.</p>																			
<p>Further Description of Controls Added to Reduce Risk: PAAA requirements regarding radiation controls are subject to rigid enforcement and fines and penalties. It is particularly important in non-routine activities with the potential for unusual exposures (such as commissioning or fault studies) that they be carefully planned and executed.</p>																			
*Risk:		0 to 20 Negligible			21 to 40 Acceptable			41 to 60 Moderate			61 to 80 Substantial			81 or greater Intolerable					