

Name(s) of Risk Team Members: P. Cirnigliaro, A. Etkin, R. Karol, E. Lessard, J. Maraviglia, D. Passarello, A. Piper, R. Savage, J. Scott, M. Van Essendelft		Point Value → Parameter ↓	1	2	3	4	5					
Area/Facility Description Title: Collider-Accelerator Department Accelerators Area/Facility # (if applicable): Accelerators Area-Wide FRA 24		Occupancy or Use	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift					
Area/Facility Description: Area-Wide Accelerator		Severity	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability					
		Likelihood	Impossible	Unlikely	Possible	Probable	Multiple					
Approved by: <i>E. Lessard</i> Date: 7-20-04 Rev.#: 1							Comments:					
Reason for Revision (if applicable): FRA number added. Uniform hazard nomenclature added.												
			Before Additional Controls				After Additional Controls					
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	% Risk Reduction
Radiation	See Facility-Wide Radiation Evaluation	See Facility-Wide Radiation Evaluation										
Electrical	See Facility-Wide Electrical Evaluation	See Facility-Wide Electrical Evaluation										
Material Handling	See Facility-Wide Material Handling Evaluation	See Facility-Wide Material Handling Evaluation										
Housekeeping	See Facility-Wide Housekeeping Evaluation	See Facility-Wide Housekeeping Evaluation										
Fire	See Facility-Wide Fire Evaluation	See Facility-Wide Fire Evaluation										
ODH	See Facility-Wide ODH Evaluation	See Facility-Wide ODH Evaluation										
Water	Being struck by an object due to a pressure release	Postings, maintenance, PPE, training, work planning, ASSRC review, procedures, Tier 1 inspections, PLC monitoring and interlocks	4	3	2	24						

Water	Contact with temperature – extremes that result in such injuries as heat exhaustion, frost bite or burns	Postings, maintenance, PPE, training, work planning, ASSRC review, procedures, Tier 1 inspections	4	3	2	24					
Cryogenic	Being struck by an object due to a pressure release	Postings, maintenance, training, work planning, LOTO, Cryogenic Safety Committee /ASSRC reviews, procedures, PPE, interlock systems, Tier one inspection, pressure testing	4	4	2	32					
Cryogenic	Contact with temperature – extremes that result in such injuries as heat exhaustion, frost bite or burns	Postings, maintenance, training, work planning, LOTO, Cryogenic Safety Committee /ASSRC reviews, procedures, PPE, interlock systems, Tier 1 inspection	4	3	2	24					
Cryogenic	ODH	Postings, maintenance, training, work planning, LOTO, Cryogenic Safety Committee /ASSRC reviews, procedures, PPE, interlock systems, Tier 1 inspection, interlock testing	4	5	2	40					
Pressurized Systems	Being struck by an object such as flying debris	Postings, PPE, maintenance, training, work planning, Cryogenic Safety Committee /ASSRC reviews, procedures, interlock systems, Certification/testing of pressure related equipment, Tier 1 inspections, LOTO, C-AD Chief ME reviews, codes and standards usage	5	3	3	45					
Vacuum	Ear damage	Postings, PPE, maintenance, training, work planning, ASSRC reviews, procedures, Tier 1 inspections, Chief ME reviews, vacuum windows covered during handling, use of industry standards, design reviews	4	4	2	32					
Vacuum	Being struck by an object such as flying debris	Postings, PPE, maintenance, training, work planning, ASSRC reviews, procedures, Tier 1 inspections, Chief ME reviews, vacuum windows covered during handling, , use of industry standards, design reviews	4	4	2	32					
Work at heights	Falls to lower level, such as falling from a ladder or over a railing	Postings, barriers, fall protection, maintenance, training, work planning, procedures, Tier 1 inspections, PPE, approved scaffolding and platforms, approved ladders, anti-slip surfaces	3	5	3	45					
RF	Thermal radiation exposure	Postings, maintenance, training, work planning, ASSRC reviews, procedures, interlock systems, Tier 1 inspections, RF gaskets	2	4	2	16					
Lasers	Thermal radiation exposure and eye damage	Barriers, interlock systems, postings, training, LSO review, work planning, PPE, procedures, Tier 1 inspections, warning systems	4	4	2	32					

Magnetic Field	Adverse mechanical force exerted on ferromagnetic objects and or to electronic/medical implants	Barriers, warning systems, postings, training, ASSRC review, work planning, procedures, Tier 1 inspections, magnetic safety reviews, medical exams	5	4	2	40					
Remotely Operated Equipment	Becoming caught in or compressed by equipment	Postings, barriers, guards, maintenance, training, work planning, procedures, Tier 1 inspections, ASSRC reviews	2	3	2	12					
Chemicals	Personnel exposure, fire, explosions, reactive metals	Postings, barriers, PPE, maintenance, training, work planning, procedures, Tier 1 inspections, CMS, MSDS	3	2	2	12					
Confined Spaces	Entrapment, engulfment, exposure to dangerous atmospheres	Barriers, postings, training, Confined Spaces Permits, work planning, procedures, Tier 1 inspections	2	5	2	20					
Further Description of Controls Added to Reduce Risk:											
*Risk:	0 to 20	21 to 40	41-60				61 to 80		81 or greater		
	Negligible	Acceptable	Moderate				Substantial		Intolerable		