

Name(s) of Risk Team Members: P. Bergh, R. Karol, J. Young, M. Robles			Point Value → Parameter ↓	1	2	3	4	5			
Area/Facility Description Title: Collider-Accelerator Department Area/Facility # (if applicable): General Facility FRA 3-05			Occupancy or Use (A)	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift			
Area/Facility Description: General Facility-Wide Ionizing Radiation			Severity (B)	First Aid Only	Medical Treatment	Lost Time	Partial Disability	Death or Permanent Disability			
			Likelihood (C)	Extremely Unlikely	Unlikely	Possible	Probable	Multiple			
Approved by: <i>E. Lessard</i> Date: 3-1-05      Rev.#: 0								Comments:			
Reason for Revision (if applicable): Annual Review											
			Risk with Controls in Place				Risk with Additional Controls in Place				
Physical Item or Activity	Hazard(s)	Control(s)	Occupancy A	Severity B	Likelihood C	Risk* AxBxC	Control(s) Added to Reduce Risk				% Risk Reduction
Primary beam	Unshielded proton, electron or ion beam, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, RSC reviews	1	5	1	5					
Secondary beam	Unshielded beams, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, locked gates, fenced in areas, RCD surveys, RWPs, work planning, RSC reviews, RCD oversight	1	4	2	8					
Target Areas	Unshielded beam, residual radiation, external radiation	ACS, PASS, security sweeps, postings, crash buttons and chords, C-AD area classification, shielding, dosimetry, training, locked gates, fenced in areas, RCD surveys, RWPs, work planning, RSC reviews, RCD oversight, extra shielding around targets, special keys to target areas	1	5	1	5					
General area radiation	Residual radiation, external radiation	Postings, training, shielding, RCD surveys, TLD area monitoring program, RCD oversight, RWP, work planning	5	1	4	20					
Contamination	Residual radiation, activated fluids, external or internal radiation	Postings, training, RCD surveys, RCD oversight, RWP, work planning, PPE, friskers, keeping contamination areas minimized, response to spills	2	1	4	8					
Internal radiation	Internal radiation	RWP, work planning, PPE, WB counting, sealed tunnel/cave gates to reduce exposure to activated air, vacuum pipe or helium bags to transport primary beam, delay before entering primary areas to allow decay of isotopes, HEPA vacuums, air sampling, routine contamination survey program, RCD oversight	2	1	3	6					
Storage of Radioactive Materials	Residual radiation, external radiation	Fenced and posted areas, dosimetry, RWPs, work planning, RCD oversight, inspections, RMA inventories, some areas locked, shielding	5	1	4	20					
Radioactive Sources	Internal or external radiation	Training, BNL and C-AD source custodians, source inventory, shielding, locked boxes, leak checks, posting, dosimetry, Chipmunk calibration procedures, locked cage for Chipmunk source	5	2	2	20					
RF Cavities	X-rays	ACS, PASS, shielding, training, RCD surveys, postings, locked areas, procedures for test areas, RWP, work planning	1	5	1	5					

Tours	Internal or external radiation	Postings, trained escorts, RCD concurrence to enter radiation areas, RWP, work planning, training waiver, red TLD, BNL minors policy	3	1	2	6					
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						