

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 Area/Facility # (if applicable): Area-Wide FRA 9			Occupancy or Use	≤once/year	≤once/month	≤once/week	≤once/shift	>once/shift			
Area/Facility Description: Area-Wide Helium Reliquifier			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: 7/8/04 Rev.#: 1			Reason for Revision (if applicable): FRA number added. Uniform hazard nomenclature added.			Comments:					
			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				% Risk Reduction
Cryogenic systems	Oxygen deficiency	ODH analysis, ODH exhaust fans, training, remote/local audible/visible alarms, Fire/Rescue group response, EMTs, Cryo-systems designed to consensus codes, procedures, work planning, LOTO, inspections, PPE as required, postings and labeling, Cryogenics Safety Committee/ASSRC reviews.	2	5	2	20					
Pressurized Systems	Being struck by an object, such as flying debris from a release of pressurized gas	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	2	3	3	18					
Vacuum	Ear damage from vessel rupture	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	2	3	3	18					
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	2	3	3	18					
Electrical (< 600 VAC)	Shock or electrocution from exposed wiring; overheated wiring if not properly installed, overused or in disrepair; improper grounding, arc blast, burn	All equipment is listed or reviewed by CEE, Tier 1 inspections, disconnected cable policy, installations comply with applicable codes, procedures, training, distribution drawings, LOTO, Kirk keys, working hot permits, ASSRC/ESRC reviews, qualified electricians and technicians, cabinet interlocks, postings, locked areas, guarding, work planning, GFCI, grounding standards, emergency procedures, two-person rule for hot work	4	5	2	40					
Working 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					
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