NC Job Risk Assessment

Name(s) of Risk Team Members: L. Davis, D. Elling, R. Sabatini, D. Elling	**Point Value → Parameter ↓**	**1**	**2**	**3**	**4**	**5**
Job Title: ***Working with Vacuum Systems*** **Job Number or Job Identifier: NC-JRA-015**	**Frequency (B)**	**≤once/year**	**≤once/month**	**≤once/week**	**≤once/shift**	**>once/shift**
Job Description: Work with systems subject to vacuum pumps and pressures less than atmospheric	**Severity (C)**	**First Aid Only**	**Medical Treatment**	**Lost Time**	**Partial Disability**	**Death or Permanent Disability**
Training Procedures List (Optional): Approved by: R. Sabatini Date: 5/16/2011 Rev. #: 1	**Likelihood (D)**	**Very Unlikely**	**Unlikely**	**Possible**	**Probable**	**Multiple**
Stressors (if applicable, please list all)		**Reason for Revision (if applicable):** 3 yr cycle			**Comments:**	

			Before Additional Controls							After Additional Controls						
Activity	**Hazard**	**Control(s)**	**Stressor**	**# of People A**	**Frequency B**	**Severity C**	**Likelihood D**	**Risk* AxBxCxD**	**Control(s) Added to Reduce Risk**	**Stressors**	**# of People A**	**Frequency B**	**Severity C**	**Likelihood D**	**Risk* AxBxCxD**	**% Risk Reduction**
1. Operation of Vacuum Systems	Electrical Shock	Proper grounding, feed-through protectors, strain relief, power cord condition, Tier 1 inspections, EEI inspections.	N	1	4	5	1	20								
	Release of toxic or potentially hazardous nanomaterials due to vacuum failure	Interim standard on nanomaterials, work permit, vacuum interlocks, Experimental safety reviews, HEPA filters	N	1	3	2	2	12								
	Inhalation of oil mists	Mist eliminators, venting to hoods or outdoors	N	1	4	2	2	16								
2. Assembly or disassembly	Bending, twisting, overexertion, dead	Proper lifting techniques, back safety training (if applicable) , Coordination wit co-	N	1	3	2	3	18								

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of vacuum system components	lifting, repetitive motion, working in areas with restricted access resulting in bumps and abrasions	workers, work planning , gloves														
3. Leak checking vacuum systems	See NC-JRA-004 Work with compressed gas cylinders															
4. Maintenance of vacuum systems	See NC-JRA—11 Hand Tool Use															
	Bending, twisting, overexertion, dead lifting, repetitive motion	Proper lifting techniques, back safety training (if applicable), coordination with co workers, work planning, gloves	N	1	3	2	2	12								
	Potential exposure to toxic/hazardous materials (nanomaterials)		Y	1	2	3	2	12								
5. Bleeding up of vacuum systems to atmospheric	Release of vacuum potential overpressure from purge gas.	Follow manufacturers recommendations for maintenance, SOP's for maintenance, Regulate N2, See NC-JRA-004 Compressed gas.	N	1	2	3	2	12								
6. Heating of vacuum systems/bakeout	Contact with temperature extremes (burns)	Insulated Heating blankets/panels, warning signs, gloves, lab access controls.	Y	1	3	2	3	18								

***Risk:**	**0 to 20**	**21 to 40**	**41-60**	**61 to 80**	**81 or greater**
	Negligible	**Acceptable**	**Moderate**	**Substantial**	**Intolerable**