**Project Review**  **Date:**

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| **Principle Investigator: Permit #: G-**  **Location: Department:**  **Contact Information:** | |
| **Scope of work (agents, conditions, activities):** | |
| **Hazards associated with the task/equipment:**  **Agent:**  Fluids/compressed gasses:  Chemical asphyxiant:  Simple asphyxiate/oxygen deficient  Toxic  Carcinogenic  Teratogenic  Mutagenic  Reproductive hazard  Nonionizing radiation  Laser (class 3b or 4): class \_\_\_\_\_\_  Biological hazard/pathogenic  Sensitizing  Corrosive  Self-reactive or unstable  Reducing  Peroxide-forming  Catalytic  Pyrophoric  Potentially explosive  Flammable/combustible  Oxidizing  Water-reactive | **Condition:**  High Pressure:  Low Pressure/vacuum: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Electrical (50v): voltage  Steam: \_\_\_\_\_psi  Pneumatic (15 psi):  Hydraulic:  Suspended weight: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_lbs.  Uneven surfaces  Mechanical/moving parts  Hot surfaces (2nd degree burn)  Extreme cold  Fall hazard/heights  Cave in/collapse  Clutter/confined area  Noise (85 dbA): \_\_\_\_\_dbA  Exhaust  UV radiation  Magnetic fields  Vibration  Robotics  Open flame/sparks/potential fire hazard  Fabricated parts (non-UL, non-ASME, etc.) |
| **Activity**  Lifting (mechanical or person)  Chemical mixing  Waste handling –  Transportation of hazardous materials | Sharp objects  Fuel storage  Remote location  Construction site access  Creation of secondary product: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Risk Rating (with weighted scaling per NFPA 45) *before* controls:**  CV =  OV =  Risk Rating (CV x OV) = | No Risk (RR=0)  Low Risk (RR=1-9)  Medium Risk (RR=10-19)  High Risk (RR=20-59)  Critical Risk (RR=60-100) |

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| **Engineering Controls:**  Fume Hood  Bio Safety Cabinet  Local Exhaust Ventilation  Dust Collection System  Enclosure/Guards/Barriers  Shielding  Shoring  Distance  De-energization/Lockout-Tagout  Isolation/Control Room  Elimination/Substitution  Mechanical Devices/Equipment  Soundproof Room/Chamber  Designed for MAWP & Temp  UL or ASME rated  Variance granted (VDOLI)  Insulation/Encapsulation  Other: | **Administrative Controls:**  EHS Safety Training  Task/Hazard Training  SOP developed  SWPs followed  Noise reduction  Restricted access  Entry assessment  Air Monitoring  Exposure Monitoring  Haz Com Plan/CHP  Medical Surveillance  Energy Control Proc.  PFE/Fire Watch  Hazard Analysis  Schematic (detailed)  Hot Work Permit  Vaccination(s)  Warning signs | **Personal Protective Equipment:**  Hazard Assessment Form  Included in SOP |
| **Risk Rating (with weighted scaling per NFPA 45) *after* controls:**  CV =  OV =  **Risk Rating (CV x OV) =** | | No Risk (RR=0)  Low Risk (RR=1-9)  Medium Risk (RR=10-19)  High Risk (RR=20-59)  Critical Risk (RR=60-100) |
| **What If Analysis:** Worst-case scenario? Lose power unexpectedly? Power returns unexpectedly?  Vessel/hose/connection fails? Lose pressure? Excessive pressure? | | |
| **Action Items/Comments:** | | |

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| **NFPA 45, Table B-1: Severity of Consequences with *Weighted* Scaling** | | | | | | |
| **Consequence Value (CV)** | | **Impact to:** | | | | |
| **Rating** | **Value** | **Personnel Safety** | **Resources** | **Work Performance** | **Property Damage** | **Reputation** |
| No Risk | **1** | No injuries | No impact | No delays | Minor | No impact |
| Minor | **5** | Minor injuries | Moderate impact | Modest delays | Moderate | Potential damage |
| Moderate | **10** | Moderate to life impacting injuries | Additional resources required | Significant delays | Substantial | Damaged |
| High | **20** | Life threatening injuries from single exposure | Institutional resources required | Major operational disruptions | Severe | Loss of confidence |

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| **NFPA 45, Table B-2: Probability of Occurrence with Standard Linear Scaling** | | |
| **Occurrence Value (OV)** | | **Probability of Occurrence** |
| **Rating** | **Value** | **Percent** |
| Not present | **0** | 0% |
| Rare | **1** | 1-10% |
| Possible | **2** | 10-50% |
| Likely | **3** | 50-90% |
| Almost certain to certain | **4** | 90-100% |

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| **NFPA 45, Table B-6: Hazard Risk Rating with Weighted Scaling** | | | | | |
|  | | **Severity of Consequences (CV)** | | | |
|  | **Ratings** | **CV = 1**  **No Risk** | **CV = 5**  **Minor** | **CV = 10**  **Moderate** | **CV = 20**  **High** |
| **Probability of Occurrence (OV)** | **OV = 4** | RR = 4  LOW | RR = 20  HIGH | RR = 40  HIGH | RR = 80  CRITICAL |
| **OV = 3** | RR = 3  LOW | RR = 15  MEDIUM | RR = 30  HIGH | RR = 60  CRITICAL |
| **OV = 2** | RR = 2  LOW | RR = 10  MEDIUM | RR = 20  HIGH | RR = 40  HIGH |
| **OV = 1** | RR = 1  LOW | RR = 5  LOW | RR = 10  MEDIUM | RR = 20  HGH |
| **OV = 0** | RR = 0  N/A – The material or process is not present in the laboratory. | | | |

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| **NFPA 45, Table B-4: Risk Level and Response Expectations** | |
| **Risk Level** | **Expectation of Response** |
| **LOW** | **Acceptable** level of risk.  Monitor and manage. |
| **MEDIUM** | **Tolerable** level of risk.  Implement corrective action and consider additional controls. |
| **HIGH** | **Tolerable** level of risk with strict controls and oversight.  Implement mitigating and corrective actions with routine monitoring and oversight. |
| **CRITICAL** | **Intolerable** level of risk.  Implement mitigating and corrective actions. Engage higher levels of management. |