**{Company Name}**

**JOB HAZARD ANALYSIS – PLUMBING ACTIVITIES**

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| **Title of Job/Operation:** |
| **Subcontractor:** |
| **Job Number:** |
| **Date:** |
| **Author:** |
| **Project Description:** |

**General Requirements for the use of a Job Hazard Analysis (JHA):**

Prior to starting any job, a toolbox meeting will be held to discuss the work phases and review the entire job. It will include the identification of any hazards and discussing the safest way to complete the job. All personnel involved in this work shall be familiar with this JHA and are required to acknowledge and sign the document.

All employees shall be aware of BNL safety rules as documented in this JHA and the applicable Health and Safety Plan (HASP), which must be available onsite. A brief summary follows:

1. Effective safety supervision shall be present on the project whenever work is to be performed.
2. All employees shall be effectively trained for the tasks which they are required to perform.
3. All PPE (Personal Protective Equipment) shall comply and be used per applicable ANSI standards. All workers must wear high visibility clothing, safety shoes, and safety glasses with side shields.
4. Maintain proper housekeeping throughout the project.
5. Any injury is to be reported to the supervisor immediately.
6. All electrical equipment shall be NRTL-listed (UL, CSA, ETL, TUV, etc.) or otherwise accepted by the BNL EAHJ through the EEI program.
7. Test GFCI before each use. No daisy chaining of extension cords.
8. All employees shall be aware and trained in the chemical hazard communication program (SDS, Right-to-Know). All SDSs for chemicals used shall be on file and approved by the BNL supervisor prior to the start of work as per OSHA requirements. Provide training as required by specific SDS.
9. Eyewash/Shower stations will comply with current ANSI standards located within 10 seconds but no further than 100 feet from hazardous chemical use areas.
10. If refueling equipment, use approved fuel dispenser cans only and post a no-smoking sign.
11. Operator manuals for power equipment will be available and reviewed for safe use.
12. Equipment such as ladders, power tools, hand tools, extension cords, etc. will be inspected daily for defects.

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| **Job Steps or Task** | **Hazards** | **Control Measures/Mitigation** |
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| Mobilization | Injury from lifting  Falls  Injury to building personnel  Strains and sprains | Follow proper lifting procedures.  Inspect floors and stairs for uneven surfaces.  Barricade areas to keep un-authorized people out of area, and to protect BNL population.  All work to be done in accordance with work permit including all permits, training, RWP’s and dosimetry as required for work in all laboratory locations under all hazardous conditions.  Notify building manager before start of work. |
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| Lock out/ tag out of potential  energy sources if required by work permit | Electrocution  Burns  Steam explosion/release  Gas explosion/release  Flood | Tag out or lock out potential sources of energy.    Verify zero energy in system.  Follow completely the SBMS subject area requirements for LOTO. |
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| Soldering Copper tube and fittings | Eye injury  Fire  Drips from molten metals  Fire alarms | Wear proper PPE: Safety Glasses with side shields, Gloves.  Clear area of flammable materials.  Have at least one 10# ABC fire extinguisher immediately available.  Procure all fire alarm shut downs as needed.  Use resistant shielding to prevent fire when using torch in close quarters.  All Hot work in accordance with SBMS Fire Safety, Section “Welding Cutting and Other Hot Work” |
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| Pipe threading | Oil spills  Electrocution  Back injury  Eye injury, fire  Punctures and lacerations from metal cuttings | Use secondary containment and absorbents under machine.  Inspect all cords for fraying, nick and cuts, tag and remove defective tools or equipment.  Use GFCI  Wear proper PPE, Proper Gloves, and safety Glasses with side shields.  Do not daisy chain extension cords.  Have at least one 10# ABC fire extinguisher immediately available.  The manual for the Pipe Threading will be available for review by affected workers. |
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| Use of hand and power tools | Electrocution  Eye injury  Hand injury | Use proper grounding, GFCI.  Wear proper PPE, Safety.  Glasses with side with side shields, gloves.  Inspect tools prior to use and make sure they are in proper working order.  Inspect Power tool and extension cords for nicks, frays, and missing ground pins.  Do not daisy chain extension cords.  Review manuals for power tools prior to use to assure user compliance. |
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| P.V.C. Piping | Asphyxiation  Eye injury  Hand injury  Explosion hazard of vapors remaining in pipe | Use glue and solvent only in well ventilated area, do not cap system to allow proper venting of system.  Follow manufacturers recommendations for using glue.  Wear Proper PPE, Safety Glasses with side shields, Gloves. |
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| Use of Portable Ladders | Falls | Fully open ladder, check all legs are steady, keep body centered on ladder, do not overextend by reaching left or right of ladder.  Do not step on top or last step before top of ladder.  Inspect for damage to ladder prior to use.  Use ladders only in accordance with manufactures instructions.  All workers using portable ladders must complete ladder safety training |
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| Use of portable hand cart or dolly | Trips, slips, falls, dropping of materials being moved | Use rated device only as intended by the manufacturer, do not overload.  Make sure load being carried is secure and path is clear of obstacles. |
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| Housekeeping | Personal injury  Property damage | Use caution tape and signs to show where the work is being done, and to keep unauthorized people away. |
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| Protection of workers and BNL population | Personal injury | Use caution tape and signs to show where the work is being done, and to keep unauthorized people away. |
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| Filling of system with non-toxic propylene glycol | Electrocution from pump  Glycol in eyes | Make sure pump is GFCI protected.  Inspect pump and extension cords for nicks and frays.  Do not daisy chain extension cords |
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| Insulation | Skin and eye irritations  Inhalation of insulation fibers | Wear long sleeves, gloves, safety glasses with side shields. |
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| Removal of piping | Danger to people in area  Spills  Tripping hazard | Barricade area, keep unauthorized people away.  Have services shut down and drained by BNL personnel.  Use containers to pour contents into if necessary.  Keep work area clean and safely move debris to designated area. |
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| Installing piping or equipment on roof | Trips  Falling from roof | Install fall protection barricades on roof in area of work  Follow fall protection measures as required in the HASP |

I have attended the safety orientation tool box meeting where we discussed the phases of the job and any potential hazards, housekeeping, and keeping the BNL population out of harm’s way. We also reviewed the JHA & BNL Work Permit.

I have read and understand the aforementioned JHA recommended job safe procedures and the BNL Work Permit and will follow them throughout this job:

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| **Name** | **Life Number** | **Signature** | **Date** |
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A signed copy of the JHA must be posted while the applicable subcontractor is working on-site and be available to any BNL employee upon request.