**STUDY OF MUON NEUTRINO OSCILLATIONS USING MICROBOONE DATA RISK ASSESSMENT**



| **Date:**  30/01/2024 | **Assessed by:**  Jasper Burvill and Vadan Khan | **Checked / Validated\* by:**  John Waiton | **Location**  1.15, Schuster Building | **Assessment ref no** | **Review date:**  Before labs start |
| --- | --- | --- | --- | --- | --- |
| **Task / premises:** | | | | | |

| **Activity** | **Hazard** | **Who might be harmed and how** | **Proposed measures to control risk** | **Risk rating** | **Result** |
| --- | --- | --- | --- | --- | --- |
| Working with liquid argon | Leakage of argon gas | People working near the tank, extreme danger of asphyxiation as the gas displaces oxygen that could lead to death. | Train employees on dangers of liquid argon, install many emergency exits from the building, warning systems for gas leakage e.g. pressure changes. | High | A |
| Working with low temperature equipment | Liquid argon kept at 87K | People working the tank, can cause severe cold burns, frostbite, retinal damage, and death. | Careful quality control on sealing the tank, keep the tank difficult to access and accidentally touch. Suitable PPE e.g protective gloves and goggles. | High | A |
| Working with high voltage equipment | Detector planes held at 100kV | People working near the detector, danger of electrocution | Careful manage loose wires and ensure exposed equipment is well insulated (so long as it doesn’t affect the experiment). No food or drink near the detector. | Medium | A |
| Moving around the lab | Trip hazard | Any Operators, Cuts and Bruises, Broken Bones | Organised Labs, no low-lying objects in hidden view. Safety rails on stairs and suitable disabled access. | Low | A |

**PLEASE READ THE NOTICE BELOW BEFORE SIGNING THIS FORM**

I acknowledge that I have read and understood the Risk Assessment associated with this experiment.

|  |  |  |
| --- | --- | --- |
| **Name of student 1**  **Jasper Burvill** | **Signature Jasper Burvill** | **Date 30/01/2024** |
| **Name of Student 2**  **Vadan Khan** | **Signature** Vadan Khan | **Date 30/01/2024** |
| **Demonstrator/supervisor** | **Signature** | **Date** |

**Notes to accompany Laboratory Risk Assessment Form**

When all the control measures identified are implemented, the remaining risk ratings may be:

**LOW** - if it is most unlikely that harm would arise under the controlled conditions listed, and even if exposure occurred, the injury would be relatively slight.

**MEDIUM** - if it is more likely that harm might actually occur and the outcome could be more serious (e.g. some time off work, or a minor physical injury.

**HIGH** - if injury is likely to arise (e.g. there have been previous incidents, the situation “looks like an accident waiting to happen”) and that injury might be serious (broken bones, trip to the hospital, loss of consciousness), or even a fatality.

**Result**: this stage of the risk assessment is probably the most important. The options are:

**T = trivial risk**. Use for very low risk activities to show that you have correctly identified a hazard, but that in the particular circumstances, the risk is insignificant.

**A = adequately controlled, no further action necessary.** If your control measures lead you to conclude that the risk is low, and that all legislative requirements have been met (and University policies complied with), then insert A in this column.

**N = not adequately controlled, actions required**. Sometimes, particularly when setting up new procedures or adapting existing processes, the risk assessment might identify that the risk is high or medium when it is capable of being reduced by methods that are reasonably practicable. In these cases, an action plan is required. The plan should list the actions necessary, who they are to be carried out by, a date for completing the actions, and a signature box for the assessor to sign off that the action(s) has been satisfactorily completed. Some action plans will be complex documents; others may be one or two actions that can be completed with a short timescale.

**U = unable to decide. Further information required.** Use this designation if the assessor is unable to complete any of the boxes, for any reason. Sometimes, additional information can be obtained readily (e.g. from equipment or chemicals suppliers, specialist University advisors) but sometimes detailed and prolonged enquiries might be required. e.g. is someone is moving a research programme from a research establishment overseas where health and safety legislation is very different from that in the UK.

**For T and A results**, the assessment is complete.

**For N or U results**, more work is required before the assessment can be signed off.