Engineering Physics/C.E.D.T. Research Hazards Safety Report

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1. Potential hazards in the research project:

Class A: High pressure – CO₂ cylinder, liquid Nitrogen tank Class B: Flammable materials – 70% and 99% ethanol Flashpoint: 16.6°C Explosion Limits: Lower: 3.3 vol %; Upper: 19.0 vol % Vapor Pressure: 59.3 mm Hg @ 20°C Auto-ignition Temp: 363°C Class D1: Immediately toxic materials – Adenine Radiation: Laser – Microscopes Electrical: High voltage enclosed – Laser sources Extreme low temperature – Liquid Nitrogen Potential Falling objects – Items on shelves and cupboards Biohazards – CP-A and CP-B cells (Barrett's esophagus)

2. Routine Operating Procedures:

a. Laboratory Protective Devices in Use

All Biosafety Level 2 (BSL2) cells and specific harmful chemicals (as mentioned above) must be handled in a certified biological safety cabinet (BSC). BSC surfaces are wiped before and after work with 70% ethanol. UV lights in the BSC are turned on after each use to further disinfect the working station.

b. Personal Protective Devices in Use

When working with BSL2 materials and specific harmful chemicals, personal protective devices, such as a lab coat, gloves and closed toed shoes, must be worn. Lab coat sleeves must be taped so they do not absorb substances or cause other accidents in the BSC. Ensure no open wound is exposed and long hair is tied up. Contacts must not be worn when working with organic materials. Hands must be washed with disinfectant soap after all lab work.

c. Other Protective Procedures in Use

After handling the biological hazards, collect all wastes in a plastic bag which is then tied and sprayed with 70% ethanol before its removal from the BSC. Dispose in the red plastic lined cardboard box indicated "Biohazard". Biological reagents and wastes should be bleached with 10% bleach before disposing appropriately.

3. Emergency Preparation

(Note: for immediate assistance, dial 5555 \rightarrow Biophotonics Facility is located in the hospital and follows different protocols)

a. Emergency Procedures

Fire – Identify the cause and utilize the corresponding fire extinguisher located beside the entrance door. Instances of large fires require surrounding staff to be alerted in addition to pulling the fire alarm. Dial 5555 and evacuate the building from the nearest stairwell. *Chemical spills* – Utilize the appropriate spill kit (base or acid) located at the shelves beside the refrigeration devices. If required, the first aid kit is also located in the same location. Spills should be covered with the appropriate absorbent material. Spray or pour disinfectant on top of the spill and allow for it to sit for 30 minutes. Discard the waste and wipe down the area with disinfectant. Do not turn off the BSC; allow it to run.

Skin and eye contact – Be sure to follow the instructions found in MSDS sheets of specific chemicals. Eye wash and shower stations are accessible across the hall from the High Throughput scanning room.

b. Emergency Devices/Devices available

Emergency Devices which are available include fire extinguishers, eye wash, shower, spill kits and first aid station. Fire extinguishers are located beside the entrance door. Eye wash is located at the sink in the HSC 4H14. Shower station is found across the hall from the High Throughput Screenning room (HSC 4H10). Spill kits and the first aid station are found in the shelves beside the refrigeration devices.