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Experiment Safety Review Form
Review Number: PS-ESR-1-110-2012

PRINCIPAL INVESTIGATOR: Dennis Carlson
GROUP: NSLS - User Support
EXT: 4926 **E-MAIL: dgcarlson@bnl.gov** **LIFE NUMBER: 12678**

Project Title: General User Lab	
Location(s): 0725	
Area(s): 0725-FIRST-1-110	
Proposed Start Date and Duration: 2/19/2010 - 5 years	

SIGNATURES:

Principal Investigator: Dennis Carlson	**Date: 3/10/2011**
Experiment Review Coordinator: Lori Stiegler	**Date: 3/10/2011**
Reviewer: Christopher Weilandics	**Date: 3/3/2011**
Reviewer: Frank Zafonte	**Date: 3/3/2011**
Reviewer: Deborah Bauer	**Date: 3/4/2011**
Reviewer: Brian Heneveld	**Date: 3/3/2011**
Approval: Lori Stiegler	**Date: 3/10/2011**
Review/Approval (ERC) Comments: 02/24/2012 9:46 AM Reviewed/approved for 2012. No changes in scope/hazards. 03/10/2011 10:06 AM	
Walkthrough Signature:	**Date:**
Expiration Date (max 1 yr.): 3/10/2013	
FUA Change Required? No	
Fire Rescue Run Card Changes Required? No	
Has a NEPA Review been Performed for this Project? No	
Required Approvals (i.e., IACUC, IBC, etc.):	
Project Termination Acceptance Signature: **Comments:**	**Date:**

I. Define the Scope of the Work

A. Description

This lab is used by experimenters that may come to NSLS and need lab space to prepare or store their samples for a few days. The experimenters typically specify the chemical operations on the Safety Approval Form for their beamline. Sample preparation uses solvents, buffers, salts, proteins, lipids and other solutions. Solutions with possible inhalation hazards are prepared using the chemical fume hood. The lab also has a chemical refrigerator.

Some samples may require use of a centrifuge, sonicator, ultrasonic bath, or mechanical press.

No corrosives are allowed to be used in this lab.

Some samples and/or reagents may be allowed to be stored in the lab for up to six months with the approval of the Lab Steward.

Equipment manuals or procedures that are controlled documents:

N/A

B. Human Performance Factors

Users may occasionally leave chemicals or samples behind. The lab is periodically checked for legacy materials, and the owners are contacted for disposition. Unowned chemicals are disposed by NSLS staff in accordance with SBMS Subject area requirements.

C. Waste Minimization/Pollution Prevention

Users are encouraged to bring smallest quantities necessary.

D. Materials Used /Waste Generated

Materials Used	Disposal Method	Amount per Use	Amount per Year	Comments
Cyclohexane, cyclo octane, cyclopentane, methanol, 2-propanol	Fugitive	10.00 ml	50.00 ml	
Cyclohexane, cyclo octane, cyclopentane, methanol, 2-propanol	Hazardous	100.00 ml	1000.00 ml	
Buffer solutions	Other	10.00 ml	100.00 ml	Returned to User Home Institution
Salts	Other	10.00 ml	100.00 ml	Returned to User Home Institution
Proteins	Other	100.00 ml	1000.00 ml	Returned to User Home Institution
Toxic metal solutions	Hazardous	10.00 ml	100.00 ml	
Chloroform	Hazardous	50.00 ml	1000.00 ml	
Bromoform	Hazardous	50.00 ml	1000.00 ml	
Inert gases, N2, Ar, He	Fugitive	1.00 ltr	50.00 ltr	
Oil from press	Industrial	0.00 ft3	1.00 ft3	
Non-medical sharps	Medical	0.00 ft3	0.50 ft3	Non-medical waste, but disposed as medical

II. Identify and Analyze Hazards Associated with the Work

The following hazards were identified:

Physical Hazards:

- Sharps (non medical)
- Compressed gases (lecture bottles, cylinders, gas lines) (Area: 0725-FIRST-1-110)
- Flammable liquids (Area: 0725-FIRST-1-110)

Chemical Hazards:

- Chemicals, Hazardous (General)
- Carcinogens (Area: 0725-FIRST-1-110)
- Flammable liquids (Area: 0725-FIRST-1-110)
- Toxic metals (e.g., As, Ba, Be, Cd, Cr, Hg, Pb, Se, Ag) (Area: 0725-FIRST-1-110)

Ionizing and Non-ionizing Radiation Hazards:

- None

Biological Hazards:

- None

Offsite Work:

- None

Other Issues (Security, Notifications, Community, etc.):

- None

Significant Environmental Aspects

- Any amount of hazardous waste generation (Area: 0725-FIRST-1-110)
- Any amount of industrial waste generation (e.g., oils, vacuum pump oil)

III. Develop and Implement Hazard Controls and Assess Risk

A. Physical Hazards, Tasks and Controls

Hazard, Default Controls, Task Specific Info	Risk Level
Hazard: **Sharps (non medical)** **Default Controls:** Sharps including needles, razor blades and syringes (plastic and glass) must be disposed of in sturdy, rigid, sharps containers. Sharps containers cannot be more than 2/3 full.	**Negligible (0-20)**
Hazard: **Compressed gases (lecture bottles, cylinders, gas lines)** **Default Controls:** • Any systems >15psi must be SME Approved • Transport cylinders using a cylinder cart • Secure cylinders to a fixed object/wall • Use regulator, hoses, and components compatible with gas • Use hoses and clamps rated for maximum regulator output or use pressure relief device • Wear safety glasses with side shields when installing/removing/or adjusting regulator • Label piping/tubing	**Negligible (0-20)**
Hazard: **Flammable liquids** **Default Controls:** As for chemicals, plus Store large quantities in Flam. cabinets as required	**Negligible (0-20)**

B. Chemical Hazards, Tasks and Controls

Hazard, Default Controls, Task Specific Info	Risk Level
Hazard: **Chemicals, Hazardous (General)** **Default Controls:** • All operations with large (>250ml, health hazard 3) quantities of hazardous chemicals (pouring, mixing, evaporation, etc) in hood, or use snorkel when hood is impractical • Register Commercial Chemicals in CMS • Work alone after hours only if permitted by supervisor or ESR • Identify containers so contents are identifiable unless being actively used (ex. 1 shift) • Food, beverage, smoking, and cosmetics are prohibited • Handle glassware properly: no mouth suction, no drinking from labware.	**Negligible (0-20)**
Hazard: **Carcinogens** **Default Controls:** Use hazardous chemicals controls plus: Establish and post a "designated area" where used Note location on fire run card and hazard info. placard. Exposure monitoring to assure that action levels not exceeded Establish procedures for work area cleanup and decontamination **Task Specific Info:** Individual containers cannot be greater than 1 L	**Negligible (0-20)**
Hazard: **Flammable liquids** **Default Controls:** Use hazardous chemicals controls. Review large quantity storage with Fire Protection Engineer Note location on fire run card and hazard info. placard for storage of solids, greater than 40 pounds; liquids, greater than 5 gallons; gases, greater than 10 pounds **Task Specific Info:** Individual containers cannot be greater than 1 L	**Negligible (0-20)**
Hazard: **Toxic metals (e.g., As, Ba, Be, Cd, Cr, Hg, Pb, Se, Ag)** **Default Controls:** As for chemicals, plus need for SHSD and OMC monitoring and surveillance must be evaluated BURF for Beryllium operation	**Negligible (0-20)**

C. Environmental Hazards, Tasks and Controls (include on/off site transportation and products/services)

Hazard, Default Controls, Task Specific Info	Risk Level
Hazard: **Any amount of hazardous waste generation** **Default Controls:** Engineering Controls • Waste will be accumulated in chemically compatible containers that appropriately contain/protect the waste. • Waste containers will be closed in a tray (secondary containment) in the Satellite Accumulation Area (SAA). Administrative Controls • All hazardous waste containers will have a (red) “Hazardous Waste Label” that has the generator’s	**Negligible (0-20)**

	name and the chemical contents (trade name/formula not acceptable). • All waste will be accumulated in closed containers and kept in an established and posted SAA until ready for transfer to the 90-Day Haz Waste Area for pick-up by Waste Management. • For pick-up by Waste management, complete the Nonradioactive Haz Waste Control Form and consult the 90-Day Area Manager to gain access/transfer the waste to the 90Day Area. Training: Hazardous Waste Gen. (HP-RCRIGEN3). PPE: When handling waste materials follow PPE requirements specified for the specific materials. Comply with the SBMS Subject Area: “Hazardous Waste Management”.	
Hazard:	**Any amount of industrial waste generation (e.g., oils, vacuum pump oil)** **Default Controls:** Engineering Controls • Store only compatible wastes together, in suitable containers. • Provide secondary containment for liquid wastes if potential for environmental release exists. • Keep containers closed and secured unless adding waste to container. Administrative Controls • Use a green industrial waste label, with generator’s name and chemical contents (trade name/formula NOT acceptable). Label oils “Used Oil”. • When full, complete and submit a WCF for pick up. The waste may be stored in the 90-day area. Training: Hazardous Waste Generator (HP-RCRIGEN3) Comply with the SBMS Subject Area: “Industrial Waste”.	**Negligible (0-20)**

D. Radiation Hazards, Tasks and Controls
None

E. Biological Hazards, Tasks and Controls
None

F. Offsite Work Hazards, Tasks and Controls
None

G. Other Issues (Security, Notifications to Other Organizations, Community Involvement, etc.)
None

H. Recommended Exposure Monitoring

- None

Description or comments:

I. EPHA Determination

Chemical Name	Quantity (lbs, gal)	Location (Bldg/Room#)

IV. Perform Work Within Controls

A. Recommended Training and Medical Surveillance Summary

- Laboratory Standard (HP-IND-220)
- Hazardous Waste Generator (HP-RCRIGEN3)
- Compressed Gas Safety (TQ-COMPGAS1)

B. Personnel Training, Qualification, and Authorization List

C. Emergency Procedures

Contact the OP Co for any spills or injuries. Follow Building 725 Local Emergency Plan. Spill control supplies are located by the East Roll-up Door.

D. Transportation

None

E. Logistical Interactions

None

F. Termination/Decommissioning

All chemicals and equipment will be transferred and/or disposed.

V. Provide Feedback

All work is planned through the SAF or Lab request form.

VI. Attachments

Attached Files: