VANCOUVER COASTAL HEALTH RESEARCH INSTITUTE (VCHRI)

SAFETY ORIENTATION GUIDE

DIVISION OF INFECTIOUS DISEASES
(452D Heather Pavilion East, 2733 Heather Street)

JACK BELL RESEARCH CENTRE
(2660 Oak Street)

VANCOUVER GENERAL HOSPITAL RESEARCH PAVILION
(828 West 10th Avenue)

WILLOW CHEST CENTRE
(2647 Willow Street)

ROBERT H. N. HO RESEARCH CENTRE
(2635 Laurel Street)
## TABLE OF CONTENTS

Emergency Telephone Numbers .................................................. 3

Emergency Procedures .................................................................. 4
  ➢ Earthquake Response Procedure ......................................... 5

VCHRI - OH & S Committee Members ......................................... 6

VCHRI - Fire Wardens ................................................................. 7

VCHRI - Safety Guidelines ......................................................... 8

Safety Courses ........................................................................... 9
  ➢ All Staff; Lab Personnel; & Supplemental Training

General Lab Safety ................................................................. 11

Working After Hours ................................................................. 11

Rights and Responsibilities ....................................................... 12
  ➢ University; Supervisor; Individual Student, Staff & Faculty

Right To Refuse .......................................................................... 13

Hazardous Materials Information ............................................... 14
  ➢ Chemical Inventory; Carbon Dioxide Cylinders; WHMIS

Waste Disposal Procedures ....................................................... 16

Spill Reporting Procedure ......................................................... 20

Incident Reporting Procedures .................................................. 21

Appendices:
  Appendix I: Chemical Incompatibility Guide ............................ 23
  Appendix II: Tissue Culture - Standard Operating Procedures .... 25
  Appendix III: Monthly Safety Checklist ................................... 29
  Appendix IV: Safety Training Record ...................................... 30
  Appendix V: Personal Safety Checklist .................................... 33

Revised: VCHRI Safety Orientation Guide – April 27, 2012
EMERGENCY TELEPHONE NUMBERS

Security ........................................................................................................................................ Dial 4777
For routine request, such as, access requests, escorts etc.

Security ........................................................................................................................................ Dial 5800
For urgent requests, such as, suspicious behaviour, first aid etc.

First Aid ....................................................................................................................................... Dial 5800
Only call if you are not able to go to VGH Emergency Department.

Life threatening emergency or ambulance required ......................................................... Dial 9-911
Also call Security at 5800 as they can assist in directing emergency crews.

Major Hazardous Spill Response .................................................................................. Dial 9-911
Cleanup IS time sensitive. Also dial 88 and inform them 911 have been called.

Intermediate Hazardous Spill Response ............................................................................ Dial 5800
Cleanup is NOT time sensitive.

Fire – pull fire “pull”, then call ..................................................................................... Dial 88

Waste Disposal - VGH Transportation ........................................................................... Dial 62729
Battery & Ethidium Bromide waste collection

Poison Control .................................................................................................................. Dial 9-604-682-5050

Facility Maintenance ........................................................................................................... Dial 54171

Compass (housekeeping) ................................................................................................... Dial 9-604-418-1369

Other:

Aramark (outside grounds & equipment removal) .......................................................... 9-604-694-6300

Vancouver Fire Department (non-emergency) ................................................................. 9-604-665-6010

UBC Risk Management Services – Occupational & Research Safety
  Manager (Bruce Anderson) ................................................................................................. 9-604-822-7596
  Biosafety Associate (Stephanie Thomson) ......................................................................... 9-604-822-9527
  Environment & Chemical Safety (Noga Levit) ............................................................... 9-604-822-9280
  Emergency & Continuity Planner (Calvin Cheung) ....................................................... 9-604-822-1237
  Occupational Hygiene Associate (Sonny Dhasi) .......................................................... 9-604-822-6098
  Radiation Safety (Ted Sedgwick or Kim Sharpe) ............................................................ 9-604-822-7052
  Environmental Services (Bang Dang) ............................................................................. 9-604-822-1285

Revised: VCHRI Safety Orientation Guide – April 27, 2012
EMERGENCY PROCEDURES

ALARM BELL (Two Stages)
Stage One - Intermittent
If the alarm bell rings intermittently (every 3-4 seconds), you have time to save your work, stop experiments and gather things. Then proceed with evacuating the building. Close all doors and windows as you are evacuating. Do not re-enter the building until the all clear signal is heard (alarm bell pause followed by three gongs)
Stage Two – Solid State
If the alarm bell rings continuously, all personnel must evacuate the building immediately. Close all doors and windows as you are evacuating. Do not re-enter the building until the all clear signal is heard (alarm bell pause followed by three gongs).

EMERGENCY ASSEMBLY AREA
Each lab/office has an emergency assembly area for personnel. After evacuating the building personnel will congregate in their assembly area and ensure all personnel are accounted for. Check with your lab manager as to where your assembly area is located.

FIRE - (DIAL 88)
In case of fire: alert staff in the area, use the nearest fire pull and evacuate the building. Dial 88 and state: “Fire at (building, floor & area)”. Provide directions to response team. Fire Wardens are listed on p.6 and are posted on the OH & S boards.

HAZARDOUS SPILLS
In case of hazardous spill; Establish control and cordon off area, notify supervisor and others, identify spill and obtain MSDS, evacuate as necessary, assess for injuries, extinguish all ignition sources if spill is flammable. Then make one of the following calls depending on the nature and extent of hazard:
• For highly hazardous spills where cleanup is time sensitive, call 911, request HAZMAT and give details, then call security at local 88 and call for a code brown and inform them that 911 has been called.
• For intermediate spills where cleanup is not time sensitive, call security at local 5800, call for a code brown and provide details of spill.
Remain at a safe distance from the spill area with MSDS until security arrives and then fill out an Incident Report.

FIRST AID - (DIAL 5800)
If you’re in need of First Aid, dial 5800 and wait for a first aid attendant. Report all injuries, even minor ones. Minor injuries can become major and if there is no record then it may be difficult to receive compensation. (Forms are available on OH & S boards).
EARTHQUAKE RESPONSE PROCEDURE

THE FIRST INDICATION OF AN EARTHQUAKE MAY BE:
- A low or loud rumbling noise
- A sudden violent jolt
- A shaking or moving of objects
- Any combination of the above

WHAT TO EXPECT:
- Ruptured water lines
- Possible loss of suction/vacuum
- Electricity may be lost (auxiliary power may or may not function)
- Fire and chemical spills may occur
- Structural damage to walls, ceiling and floors could occur
- Non-structural damage to light fixtures, shelves and window may occur
- Possible loss of telephones

WHAT TO DO IMMEDIATELY:
- Protect yourself
- Move away from large windows and objects which may fall. Drop to the floor and cover the back of your neck with your hands. If you are able, get under a heavy table or desk.

WHAT TO DO WHEN THE SHAKING STOPS:
- Assess the area for immediate danger such as fire, flooding, chemical spills
- Assess coworkers for injuries, give first aid to the most seriously injured
- Access the Earthquake Survival Kits: flashlights, hardhats, glow sticks, radio, whistles etc
- Clear away hazardous debris, close fume hood sashes
- Put all telephone receivers back on their hooks
- Check for others who may be trapped
- Remain calm and stay in intact rooms
- Prepare to evacuate when order is given or remove yourself if you perceive imminent danger
- **If you smell gas, do not flick switches**
- Prepare for aftershocks
# Occupational Health & Safety Committee

(Heather Pavilion, Jack Bell Research Centre, Research Pavilion, Robert HN Ho Research Centre & Willow Chest Centre)

<table>
<thead>
<tr>
<th>NAME</th>
<th>DEPARTMENT</th>
<th>PHONE</th>
</tr>
</thead>
</table>
| Susan Moore           | Prostate Centre / OH&S Chair  
                       | JBRC - 5th Floor                      | 69629 or 68665  
                       |                                   | susan.moore@vch.ca              |
| Karen Donaldson       | VCHRI Manager / OH&S (Co-chair)  
                       | Willow Chest Centre                  | 55470  
                       |                                   | karen.donaldson@vch.ca           |
| Norma Cooper          | VCHRI Assistant / OH&S Secretary  
                       | Willow Chest Centre                  | 61910  
                       |                                   | norma.cooper@vch.ca              |
| Christine Chow        | GPEC                                            | 68893                              |
|                       | JBRC - 5th Floor                                 |                                    |
| Mehdi Jafarnejad      | Li Lab                                          | 54891                              |
|                       | JBRC – 4th Floor                                 |                                    |
| Peng Zhang (Calvin)   | Steinbrecher & Duronio Labs  
                       | JBRC – 4th Floor                     | 54451  
                       |                                   | pengube@interchange.ubc.ca       |
| Dirk Lange            | Lange Lab - The Stone Centre at VGH  
                       | JBRC 3rd Floor                       | 63502 / 68485  
                       |                                   | dirk.lange@ubc.ca                |
| Jenny Bazov           | Vancouver Prostate Centre  
                       | JBRC – 3rd Floor                     | 604.417.9679  
                       |                                   | jbazov@prostatecentre.com       |
| Kate Orchard          | Surgical Lab                                      | 54159                              |
|                       | JBRC – Basement & 1st Floor                      |                                    |
| Jeffrey Helm          | Immunity & Infection Research Centre  
                       | Heather Pavilion                     | 68576  
                       |                                   | jhelm@interchange.ubc.ca        |
| Sonal Brahmbhatt      | Collins Lab                                      | 62445                              |
|                       | RHNH – 1st Floor                                 |                                    |
| Danmei Liu            | Centre for Hip Health & Mobility  
                       | RHNH – 5th Floor                     | danmei.liu@hiphealth.ca       |
| Agripina Suarez       | Shaw Lab                                        | 68375                              |
|                       | RP – 3rd Floor                                   |                                    |
| Ted Sedgwick          | UBC Risk Management Services Liaison             | 604.822.7052  
                       |                                   | ted.sedgwick@ubc.ca             |
|                       |                                                 |                                    | radiation@riskmanagement.ubc.ca|
| Maria Infante         | HEU Safety Steward VGH                           | 604.875.4465  
                       |                                   | Maria.infante@vch.ca            |
| Jeremy Green          | iCORD Liaison                                   | 604.675.8810  
                       |                                   | jgreen@icord.org                |

Revised: VCHRI Safety Orientation Guide – April 27, 2012
## VCHRI FIRE WARDENS

(Updated list is posted on the OH & S board)

<table>
<thead>
<tr>
<th>Building</th>
<th>Floor</th>
<th>Name</th>
<th>Room</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>D Floor</td>
<td>Jeffrey Helm</td>
<td>D452</td>
<td>68576</td>
</tr>
<tr>
<td>HPE</td>
<td>C &amp; D Floor</td>
<td>Devki Nandon</td>
<td>368F</td>
<td>54347</td>
</tr>
<tr>
<td>JBRC</td>
<td>Basement</td>
<td>Nick Tiganis</td>
<td>127</td>
<td>54159</td>
</tr>
<tr>
<td>JBRC</td>
<td>1st Floor</td>
<td>Damon Jung</td>
<td>127</td>
<td>54159</td>
</tr>
<tr>
<td>JBRC</td>
<td>2nd Floor – South</td>
<td>John Morrison</td>
<td>236</td>
<td>54849</td>
</tr>
<tr>
<td>JBRC</td>
<td>2nd Floor – North</td>
<td>Brenda Prieur</td>
<td>246</td>
<td>55404</td>
</tr>
<tr>
<td>JBRC</td>
<td>3rd Floor – South</td>
<td>Dirk Lange</td>
<td>312</td>
<td>68485</td>
</tr>
<tr>
<td>JBRC</td>
<td>3rd Floor – North</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>JBRC</td>
<td>4th Floor – South</td>
<td>Payman Hojabrpour</td>
<td>436A</td>
<td>55702</td>
</tr>
<tr>
<td>JBRC</td>
<td>4th Floor – North</td>
<td>Sylvia Cheung</td>
<td>444</td>
<td>61339</td>
</tr>
<tr>
<td>JBRC</td>
<td>5th Floor – South</td>
<td>Christine Chow</td>
<td>509</td>
<td>68893</td>
</tr>
<tr>
<td>JBRC</td>
<td>5th Floor – North</td>
<td>Susan Moore</td>
<td>555</td>
<td>69629</td>
</tr>
<tr>
<td>RP</td>
<td>1st Floor – South</td>
<td>Chris Lockhart</td>
<td>186</td>
<td>68535</td>
</tr>
<tr>
<td>RP</td>
<td>2nd Floor – South</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>RP</td>
<td>2nd Floor – North</td>
<td>Suzanne Richardson</td>
<td>260</td>
<td>54149</td>
</tr>
<tr>
<td>RP</td>
<td>3rd Floor – South</td>
<td>Agripina Suarez</td>
<td>386</td>
<td>68375</td>
</tr>
<tr>
<td>RP</td>
<td>3rd Floor – North</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>RP</td>
<td>4th Floor – South</td>
<td>Blanche Lo</td>
<td>467</td>
<td>69394</td>
</tr>
<tr>
<td>RP</td>
<td>4th Floor – North</td>
<td>Eddy Wang</td>
<td>467</td>
<td>69394</td>
</tr>
<tr>
<td>RP</td>
<td>5th Floor – South</td>
<td>Honglin Zhang</td>
<td>578</td>
<td>66319</td>
</tr>
<tr>
<td>RP</td>
<td>5th Floor – North</td>
<td>Douglas Race</td>
<td>593</td>
<td>68515</td>
</tr>
<tr>
<td>RP</td>
<td>6th Floor – South</td>
<td>Kevin McElwee</td>
<td>tba</td>
<td>63908</td>
</tr>
<tr>
<td>RP</td>
<td>6th Floor – North</td>
<td>Cristiane Yamabayashi</td>
<td>617</td>
<td>62574</td>
</tr>
<tr>
<td>RP</td>
<td>7th Floor – North</td>
<td>Vicky Chan</td>
<td>704</td>
<td>67417</td>
</tr>
<tr>
<td>RP</td>
<td>7th Floor – North</td>
<td>Shirley Yue</td>
<td>706</td>
<td>62187</td>
</tr>
<tr>
<td>WCC</td>
<td>1st Floor</td>
<td>Norma Cooper</td>
<td>109</td>
<td>61910</td>
</tr>
<tr>
<td>WCC</td>
<td>1st Floor</td>
<td>Karen Donaldson</td>
<td>112</td>
<td>55470</td>
</tr>
<tr>
<td>WCC</td>
<td>3rd Floor</td>
<td>TBA</td>
<td>TBA</td>
<td>TBA</td>
</tr>
<tr>
<td>RHNH</td>
<td>1st Floor</td>
<td>Shaun Anderson</td>
<td>189</td>
<td>21775</td>
</tr>
<tr>
<td>RHNH</td>
<td>2nd Floor</td>
<td>Lana McClelland</td>
<td>292</td>
<td>52571</td>
</tr>
<tr>
<td>RHNH</td>
<td>3rd Floor</td>
<td>Shannon Awrey</td>
<td>366</td>
<td>21767</td>
</tr>
<tr>
<td>RHNH</td>
<td>3rd Floor</td>
<td>Fariba Ghaidi</td>
<td>381</td>
<td>21781</td>
</tr>
<tr>
<td>RHNH</td>
<td>4th Floor</td>
<td>Mike Brenneman</td>
<td>492</td>
<td>21783</td>
</tr>
<tr>
<td>RHNH</td>
<td>4th Floor</td>
<td>Rouhollah Mousavizadeh</td>
<td>493g</td>
<td>n/a</td>
</tr>
<tr>
<td>RHNH</td>
<td>5th Floor</td>
<td>Danmei Liu</td>
<td>591</td>
<td>52577</td>
</tr>
<tr>
<td>RHNH</td>
<td>5th Floor</td>
<td>Lutetia Wallis-Mayer</td>
<td>572</td>
<td>21789</td>
</tr>
<tr>
<td>RHNH</td>
<td>6th Floor</td>
<td>Seth Gilchrist</td>
<td>687a</td>
<td>n/a</td>
</tr>
<tr>
<td>RHNH</td>
<td>6th Floor</td>
<td>Anna Chudyk</td>
<td>678d</td>
<td>n/a</td>
</tr>
<tr>
<td>RHNH</td>
<td>7th Floor</td>
<td>Lidi Giroux</td>
<td>796</td>
<td>52580</td>
</tr>
<tr>
<td>RHNH</td>
<td>7th Floor</td>
<td>Victoria Webber</td>
<td>799</td>
<td>52575</td>
</tr>
</tbody>
</table>

Heather Pavilion (HP), Jack Bell Research Centre (JBRC), Robert H.N. Ho Research Centre (RHNH), Research Pavilion (RP), and Willow Chest Centre (WCC).

Revised: VCHRI Safety Orientation Guide – April 27, 2012
VCHRI SAFETY GUIDELINES

VCHRI contains both VGH and UBC personnel. All new VCHRI employees, students, staff and faculty must follow UBC and WorkSafeBC regulations and receive appropriate training and orientation in the procedures required to safely perform their work. These guidelines are the MINIMUM requirements. All personnel are expected to help keep their work environment clean, uncluttered, and safe at all times.

The following guidelines are in place for all VCHRI facilities:

1. Orientation training must be conducted at the worksite by the immediate supervisor or designate. The employer is responsible for the appropriate training in lab procedures; chemical safety and biohazard safety (see Appendix V). A training record must be completed for each employee (see Appendix VI) and kept for review by WorkSafeBC inspectors or internal auditors.

2. In addition to regular safety audits done by OH & S and the University, each lab must complete a monthly safety checklist (see Appendix III).

3. VCHRI is a high security area and perimeter doors must not be propped open. Access is available only to individuals with correct identification which must be worn at all times. All visitors must sign in at the front desk and be escorted by an employee. Please report any suspicious activities or persons to security.

4. All personnel must follow proper waste disposal procedures and keep their work area and facilities clean and tidy at all times.

5. All personnel must complete WHMIS training and other safety courses as required for the nature of their work.

UBC Occupational Health and Research Safety: [http://riskmanagement.ubc.ca/health-safety](http://riskmanagement.ubc.ca/health-safety)
UBC safety courses are listed at: [http://riskmanagement.ubc.ca/courses](http://riskmanagement.ubc.ca/courses)
WorkSafeBC website: [www.worksafebc.com/regulation_and_policy](http://www.worksafebc.com/regulation_and_policy)
VCHRI website: [www.vchri.ca/s/OHAS.asp](http://www.vchri.ca/s/OHAS.asp)

Safety Notice Boards are also located on each floor near the elevators and stairwells. They contain all current safety forms and relevant safety information.
SAFETY COURSES

ALL STAFF

**WHMIS (Workplace Hazardous Materials Information System)**
This is a **MANDATORY** course for all new staff and students at VCHRI research sites. The course is available on-line at [http://www.vchri.ca/s/WHMIS.asp](http://www.vchri.ca/s/WHMIS.asp)

LAB PERSONNEL

**Laboratory Biological Safety (UBC)**
**MANDATORY** for all staff (Principle Investigators/Course Directors, faculty, staff and students) conducting work with materials designated Biohazard level II or greater. Course covers topics essential for working with all biohazards including risk factors, routes of transmission, containment facilities; personal protective equipment; inspections & reporting; decontamination/sterilization procedures; disposal & spill procedures; transportation; and the effective use of Biological Safety Cabinets.

**Laboratory Chemical Safety (UBC)**
**MANDATORY** for all faculty, staff and students who handle hazardous materials. This course covers chemical hazards, WHMIS, safe handling, storage, hazard recognition and control, waste management and emergency response. Practical session includes learning about Vancouver Fire Service’s HAZMAT team, spill clean up, decontamination procedures and how to safely extinguish a fire. (Valid 60 months).

**Introduction to Laboratory Safety (UBC)**
Covers the safe handling of chemicals in laboratories, WHMIS, hazard control, waste management and emergency response. This course is suitable for students (graduate, undergraduate & summer students) who are working under constant supervision in laboratories where chemicals are in use. (Valid 60 months)

**Radionuclide Safety and Methodology (UBC)**
**MANDATORY** for all faculty, staff & students working with radioactive materials and must be completed prior to commencing work with radioactivity. The fundamentals of radiation physics are briefly covered, with the emphasis placed on practical handling techniques, health hazards, record keeping, legal requirements, purchasing of isotopes, spill management and waste disposal. Meets the basic training requirements for the Canadian Nuclear Safety Commission (Valid 60 months).

**Animal Care (UBC)**
All personnel doing animal experiments are required to complete the UBC Animal Care Course (on-line). Additional training requirements may be necessary and will be determined by animal care management.

Revised: VCHRI Safety Orientation Guide – April 27, 2012
SUPPLEMENTAL TRAINING

**TDG - Transportation of Dangerous Goods (Air & Road)**  
**Mandatory** for all receivers and shippers of dangerous goods.

**Occupational First Aid Level One Training (UBC)**  
The Occupational First Aid Level 1 Course teaches the basics of first aid response in an emergency situation. Certification is from the WorkSafeBC and Saint John Ambulance, and is valid for two (2) years. The course also includes CPR Level A certification, which is valid for one (1) year. Course is intended for departmental first aid attendants.

**Safety Committee Training (UBC)**  
Intended for Safety Committee members and supervisors. Topics include accident prevention, effective committee operations, safety inspections, accident investigation, safety training and the role of the WorkSafeBC. Meets WorkSafeBC Safety Committee Training Requirements.

**Animal Care Certification (UBC)**  
Completion of these courses can be arranged through [www.animalcare.ubc.ca](http://www.animalcare.ubc.ca). The courses can only be completed in the following order.  
1) Biology and Husbandry of the Laboratory Rodent  
2) Anesthesia of the Laboratory Rodent  
3) General Principles of Rodent Surgery
GENERAL LAB SAFETY

1. No food or drink may be consumed in the laboratories. A shelf has been provided in the hallway for drink and food containers. Do not bring empty containers into the lab.

2. Due to possible chemical hazards: No open toed shoes; No shorts; Bare legs must be covered. No exceptions.

3. Lab coats must be worn in the lab areas but not in the lunch room or public areas.

4. Gloves should not be worn outside of the lab areas unless transferring materials between labs. You must always have one un gloved hand for opening doors, elevators, etc.

5. Personnel protective equipment (goggles, gloves, lab coats, etc.) are provided and must be used as appropriate.

6. Do not abuse shared equipment and sign up for use when required.

7. Keep exits and hallways clear.

WORKING AFTER HOURS

Completion of the Introduction to Laboratory Safety course only allows students to work under constant supervision. Students are not permitted to work alone unless they have completed the Laboratory Biological Safety and Laboratory Chemical Safety courses.

If working alone:

- Be aware of all hazards in the lab.

- Keep the lab door closed and locked if in an area that is accessible to outsiders.

- Have a contact number for another member of the lab and have them check in on you periodically to make sure you are fine.

- Immediately report any suspicious activity to Security (Dial 5800).
**Liquid Nitrogen Safety**

Liquid nitrogen has a boiling temperature of -196°C at atmospheric pressure. Direct contact can freeze the skin causing frostbite and cold burns. Delicate tissue, such as eyes, can be damaged by an exposure to the cold gas alone which would be too brief to affect skin. Liquid nitrogen has a liquid to gas expansion rate of 1:694. This means as it vaporizes the volume it occupies will expand close to 700 times. If liquid nitrogen gets into a vial, this expansion rate is what can causes vials to explode when removed from liquid nitrogen storage.

**Do not expose bare skin to liquid nitrogen or its vapours.**

**Do not inhale liquid nitrogen vapours.**

Always wear the proper protective equipment (PPE) including: a face shield (if a face shield is unavailable use goggles, not safety glasses); a lab coat; proper footwear and clothing; and cryo-gloves which are designed to protect against extreme cold.

The cryo-gloves are NOT designed to be immersed in liquid nitrogen. Always use tongs to remove items from liquid nitrogen.

**Select vials which are suitable for liquid nitrogen storage.**

Immediately loosen the lid and put vials in a container or behind a shield when thawing. Do not remove PPE until they have reached room temperature.

**Do not hold tubes in your hand to warm them up.**

Always transport liquid nitrogen in an appropriate container (not ice buckets!) which must be properly vented. Use a cart between buildings and floors.

**Do not transport liquid nitrogen in the passenger elevator, use the freight elevator.**

Always allow excess liquid nitrogen to evaporate in a fume hood or in a well ventilated area.

**NEVER use liquid nitrogen in the cold room – it is NOT ventilated.**

Never mix liquid nitrogen with ice or water. Ice can solidify around it, trapping gas at high pressure and the ice can become a projectile.

Never pour liquid nitrogen down the sink.

**Do not place freezer box towers directly on the floor; place on a Styrofoam box lid.**

Revised: VCHRI Safety Orientation Guide – April 27, 2012
RIGHTS AND RESPONSIBILITIES

Compliance with the WorkSafeBC, WHMIS (Workplace Hazardous Materials Information System) and related legislation is the minimum standard acceptable. Everyone is encouraged to exceed these minimum legal standards. All possible preventive measures are taken to eliminate accidental injuries, occupational diseases and risks to personal security.

THE UNIVERSITY:

It is the responsibility of the University acting through administrative heads to:

- provide a safe, healthy and secure working environment.
- ensure regular inspections are made and take action to improve unsafe conditions.
- ensure the health, safety and personal security considerations form an integral part of the design, construction, purchase and maintenance of all buildings, equipment and work processes.
- provide first aid facilities where appropriate.
- ensure compliance with WorkSafeBC and other applicable legislation.
- establish departmental or building safety committees
- support safety committee and supervisors in implementing effective health, safety and security programs.
- communicate with university and affected groups about events or situations when potentially harmful conditions arise or are discovered.
- ensure adequate resources are available to implement appropriate procedures.

THE SUPERVISOR:

It is the responsibility of the supervisor to:

- formulate specific safety rules and safe work procedures for their area of supervision.
- ensure that all employees are aware of safety practices and follow procedures.
- provide training in the safe operation of equipment
- inspect their areas regularly for hazardous conditions
- promptly correct unsafe work practices or hazardous conditions.
- respond to any concerns about personal security or safety. To report and investigate any accidents, injuries, unsafe conditions or security concerns which have occurred in their area.
- participate, if requested, on departmental or building safety committees
INDIVIDUAL STUDENTS, STAFF AND FACULTY:

It is the responsibility of individual students, staff and faculty to:

- observe all safety rules and procedures established by supervisory staff, administrative heads and the University
- promptly report all hazards, accidents, injuries, unsafe conditions or security issues to your supervisor or administrative head of unit
- use properly and care for adequately, any personal protective equipment provided
- be safety conscious in all activities.
- participate, if elected or appointed, in departmental or building safety committees.

RIGHT TO REFUSE

It is your right to refuse to do any activity if you believe that the activity would create an undue hazard to yourself or others. Under current regulations all employees must be trained and have hazard information on all materials they work with or are exposed to.

You can not be discriminated against for reporting hazardous conditions or refusing to work in hazardous conditions. You can not be subjected to disciplinary action because you have acted in compliance with WorkSafeBC regulations.

1. If work is refused the supervisor will investigate the matter and either:
   a) ensure the unsafe condition is remedied without delay; or
   b) if in his/her opinion the report is not valid then he/she shall inform the person who made the report.

2. If the situation is not resolved then the supervisor must investigate the work conditions in the presence of the person reporting the condition as well as a member of the Occupational Health & Safety Committee or a member of the trade union representing the worker (or if neither are available any other reasonably available worker selected by the complainant).

3. If the matter is not resolved at this point both the supervisor and the complainant must notify an officer of WorkSafeBC who shall investigate the matter without undue delay and issue whatever orders he/she deems necessary.

4. The supervisor may not assign the work to another person without informing them that the work has been refused, why the work was refused, and the right to refuse the work.

5. A temporary assignment to alternative work (with no loss of pay) can be made and this assignment shall not constitute disciplinary action.

It is expected that most matters will be resolved at points (1) or (2).
HAZARDOUS MATERIALS INFORMATION

CHEMICAL INVENTORY
(See Appendix I for the UBC Chemical Incompatibility Guide)
An annual inventory of hazardous materials must be maintained which identifies all hazardous substances and their quantities at the workplace. A chemical inventory includes the chemical name and formula of the material, the size of its container and the primary WHMIS hazard class. Annual inventories allow for the following:
1. To check ethers and other chemicals with limited shelf life.
2. To remove surplus hazardous chemicals.
3. To remove chemicals that you will not use, or have not used in the past 1-3 years.
4. To correct incompatible storage.
5. To identify which chemicals are present.

GAS CYLINDERS
All full or empty gas cylinders (e.g. carbon dioxide) must be properly secured at all times. Full and empty cylinders are stored in room 114. Access is only available between 7am to 3pm, Monday to Friday. For access after hours call security (84). Cylinders are labeled with lab name. Be sure to rip off the ‘full’ label once cylinders are empty.

WHMIS
All personnel must complete the WHMIS course provided by the OH & S committee. The information below is not a substitute for the course and is only meant as a reminder.

Class A    Class B    Class C    Class D1    Class D2    Class D3    Class E    Class F

Class A. Compressed Gas
Contents are under pressure and must be stored in a secure manner. Contents may explode if heated or may become a missile if punctured. Compressed gases include:
- compressed gas (O₂, helium, argon)
- compressed liquid (Chlorine; CO₂ )
- dissolved gas in liquid (acetylene in acetone)
- cryogenic liquids (N₂; O₂) – contact with liquid may cause frostbite.

Class B. Flammable and Combustible Material
These are solids, liquids and gases capable of catching fire or exploding in the presence of an ignition source. Examples: white phosphorus, acetone, propane, gasoline.

Revised: VCHRI Safety Orientation Guide – April 27, 2012
**Class C. Oxidizing Materials**

Oxidizing materials readily yield oxygen or its equivalents and stimulate the combustion (oxidation) of organic matter. Examples: oxygen, organic peroxides, nitrates, perchlorates.

- May cause fire if in contact with flammable and combustible materials, even without a source of ignition or oxygen
- May increase the speed and intensity of a fire
- May cause normally non-combustible materials to burn rapidly
- May react with other chemicals to produce toxic gas

**Class D1. Poisonous & Infectious Materials – Immediate & Serious Toxic Effects**

These materials have serious toxic effects and may cause death or immediate and serious effects with exposure. Examples include sodium cyanide, hydrogen sulphide, carbon monoxide, ammonia.

**Class D2. Poisonous & Infectious Materials – Other Toxic Effects**

Exposure to these materials may cause life-threatening, cumulative and serious long term health problems as well as less severe but immediate reactions. Can cause cancer, allergic reactions, disease of organs, neurological problems, reproductive problems, sensitization, and eye, skin, and respiratory system irritation. Examples include acetone, asbestos, toluene diisocyanate, chemotherapeutics, silica, lead, benzene.

**Class D3. Poisonous & Infectious Material – Biohazardous Infectious**

These materials contain harmful micro-organisms that have been classified into Risk Groups 2, 3, or 4 as determined by the World Health Organization (WHO) and Federal Government. Examples include: *E. coli*, *Salmonella*, Hepatitis B, HIV.

**Class E. Corrosive Materials**

These are caustic or acidic materials that can destroy skin or eat through metals. The can cause mild to severe burns, burn eyes and skin on contact, or burn tissues of respiratory system if vapours inhaled. Examples: caustic soda, hydrochloric acid, bleach, ammonia.

**Class F. Dangerously Reactive Substances**

Become unstable or react with other materials to cause fires or explosions.

- undergo vigorous polymerization decomposition or condensation
- become self reactive with increased pressure, temperature or shock
- react vigorously with water or incompatible materials; can give off toxic gases

Examples: barium, lithium, magnesium, phosphorus, acetylene, potassium cyanide.
WASTE DISPOSAL PROCEDURES

BATTERIES

A box is available for disposal of used batteries on the main floor by the elevators. When the box is full, call VGH Transport (62729) for pickup.

ANATOMICAL WASTE

Any human or animal tissues, organs, body parts excluding teeth, hair or nails.
Put into red anatomical waste bags (available through OH & S) or red anatomical waste containers with lids (available from VGH stores: 6L - #00073859; 20L = 00075535). Store at 4°C. Call for pickup (54615). This waste is incinerated.

BIOHAZARDOUS LIQUID WASTES

Media aspirated from cell culture plates, or which may contain biohazardous materials shall be decontaminated with bleach so that the final concentration is 5% bleach. After thorough mixing and allowing 10-15 minutes for decontamination, the solution may be washed down the drain with copious quantities of water.

BIOMEDICAL WASTES

Human Blood and body fluids contaminated with blood - refers to waste items with liquid blood in them, body fluids contaminated with blood or materials saturated with blood to the point of dripping. This waste is to be disposed of into yellow lidded containers (available from housekeeping or VGH stores; 20L pail = #00075536) lined with yellow bags.

Microbiology Laboratory Waste - refers to items such as laboratory cultures, stocks or specimens or micro organisms, live or attenuated vaccines and human or animal cell cultures used in research. This waste, once autoclaved is to be disposed of into containers lined with yellow bags.

This waste is collected by housekeeping and then sent for processing in a hydroclave that treats the waste with high temperature steam, shreds it and then it is sent to the landfill.
CHEMICAL WASTES & SOLVENTS

All solid or liquid chemical wastes that are poisonous, toxic, flammable, reactive or corrosive and cannot be disposed of in landfills or sewers. Do not mix wastes. Keep waste in its original container if it is in good condition. Collect solvents separately in red jerry cans. All waste containers must be labeled as “Waste” and require lab name, room number, contact phone number and full chemical name (no abbreviations). Contact your OH & S floor rep for access to the chemical waste storage room (JBRC - Room 113). Fill out the log book and put containers into flammable or acid cupboard. Wastes are collected every 3-4 months by Sumas Environmental, who is contracted by UBC. (For disposal of hazardous gases, explosive chemicals or unknown chemicals – contact OH & S. See Appendix I for the UBC Chemical Incompatibility Guide.)

CYTOTOXIC WASTES

Includes antineoplastics, chemotherapeutics, or cancer therapy drug waste (doxorubicin, paclitaxel, vincristine, etc.) including contaminated disposable items and solutions.
Collect wastes and put into a white gasketted pail with a yellow lid and a cytotoxic label. Seal container and label with name and room number. Collected by housekeeping and incinerated. (Containers available from VGH Stores: pail = #00011347, lid= #00075541, label = #00075421).

ETHIDIUM BROMIDE WASTE

Ethidium bromide is considered a mutagen. All items contaminated with ethidium bromide must be disposed of properly – Do NOT put into garbage or down sink. Keep liquid and solid Ethidium bromide waste separate by collecting in separate black pails with lids (available from VGH stores). When full, seal container and call VGH Transportation (62729) for pickup.

Liquid Ethidium Bromide Waste: Any buffer or solution that has or may be contaminated with Ethidium Bromide (i.e. if you pre-mix Ethidium Bromide into your gel then the running buffer after running the gel would be considered contaminated and should be disposed of into the liquid Ethidium Bromide waste black pail).
Solid Ethidium Bromide Waste: Everything that comes in contact with Ethidium Bromide (i.e. gloves, plastic ware, agarose gels premixed with or soaked in Ethidium Bromide)

Use alternative methods whenever possible. Decontamination procedures are available upon request (OH & S Committee).
GENERAL WASTE

Put into containers lined with black bags. Collected by housekeeping and sent to landfill.

GLASS WASTE

Includes non-contaminated glass. NO mercury thermometers.
Put into a black garbage bag, then put inside a cardboard box or white pail. Seal container and label as glass waste. Collected by housekeeping and sent to the landfill.

LIQUID WASTES

The GVRD (Greater Vancouver Regional District) prohibits materials entering the sewers which are:
- Nuclear or radioactive;
- Biomedical wastes;
- Flammable/Explosive: e.g. gasoline, benzene, naphtha, diesel or other fuel oil;
- Obstructive: particles > 0.5 cm in any dimension; e.g. earth, sand, ash, glass, tar, asphalt, plastic, wood, waste portions of animals, fish or fowl, and solidified fat;
- High Temperature: >65°C (150°F);
- Corrosive or with a pH at the point of discharge into a Sewer that is < pH 5.5 or >pH 10.5.
- Organic compounds (e.g. phenols, chlorophenols, benzenes, toluene, xylenes).
- Inorganic compounds (e.g. metals, cyanides, sulphides, sulphates)

MEDICAL SHARPS WASTE

Includes contaminated scalpels, needles and syringes, glass ampoules, glass vials, medical sharps, razor blades. NO mercury thermometers.
Put into a yellow plastic sharps containers (available from VGH or UBC stores). When ¾ full, seal the lid and label with lab name, room number and contact phone number. Put safely in hallway and housekeeping will collect at night. This waste is sent for processing in a hydroclave that treats the waste with high temperature steam, shreds it and then it is sent to a special landfill.

MERCURY THERMOMETERS

Mercury thermometers should be replaced with a non-mercury alternative. Package unwanted mercury thermometers so as to protect it from breakage and label the package as ‘mercury waste’. Contact your floor rep and put in chemical waste room, located in JBRC, room 113. Broken thermometers are treated as a Mercury spill – establish control of the area, call security (5800) and wait for them to arrive. A spill kit is available but should only be used by trained personnel.

Revised: VCHRI Safety Orientation Guide – April 27, 2012
PLASTIC PIPETTES

Non-contaminated plastic pipettes are placed in a box lined with a black garbage bag. Contaminated pipettes are put into yellow biohazard bags in the tissue culture areas. Both are collected by Housekeeping for appropriate disposal.

RADIOACTIVE WASTE

Dispose of all radioactive wastes according to radiation safety manual and federal procedures. Only personnel with radiation training may deal with radioactive materials. Before disposal all labels must be removed and all radioactive symbols must be defaced. Radioactive garbage should show NO level of radioactivity. All garbage must be tested and then labeled with date and name of tester before being put into the dumpster.

WASTE OIL  Take to VGH Power Plant Shed (call 62601 for access) or follow procedures for chemical wastes and put in room 113 JBRC.

ELECTRONICS
Includes computers, monitors, printers, fax machines, televisions.
These items can NOT be put in the landfill and must be disposed of at local “Return-It Electronics” centers (electronicsrecyclingbc.ca). For large collections call Encorp 1-800-330-9767. {May 2008 costs: desktop computers $10; monitors $12; notebook computers $5; printers/faxes $8; TV’s $15-45.}
SPILL REPORTING PROCEDURE

1. Spill Occurs or discovered

   Notify Supervisor/ others in area. Cordon off area.

   Are there Injuries?

   Call for First Aid – local 5800 and state a spill has occurred and give details

   Is it body fluids?

   Yes

   Yes

   No

   Is it body fluids?

   No

   Spill Identity known?

   Yes

   Yes

   No

   Assess nature and extent of hazard

   MINOR SPILL
   - Identity of substance IS known
   - No chemical reaction present
   - Manageable volume
   - Clean up is not time sensitive

   INTERMEDIATE SPILL
   - Identity of substance IS known
   - NO chemical reaction present
   - Unmanageable volume
   - Clean up is not time sensitive

   MAJOR SPILL
   - Active gas release
   - Identity of substance NOT known
   - Chemical reaction PRESENT
   - Unmanageable volume
   - Clean up IS time sensitive

   Department responsible for clean up

   Call Security – Local 5800. Call a CODE BROWN and provide details of spill

   Complete an Incident Form

   House keeping 604-418-1369

   Obtain MSDS

   Call 911 Request HAZMAT and give details

   Call Security – Local 88. Call a code brown and inform them 911 have been called

Revised: VCHRI Safety Orientation Guide – April 27, 2012
INCIDENT REPORTING PROCEDURES

The purpose of incident/accident reporting and investigations is to identify and prevent the recurrence of the hazardous conditions causing the event. The goal of investigations is to find solutions, not to place blame. (All forms are posted on the OH & S boards.)

1. Report unsafe conditions to supervisor. If appropriate fill out a Hazard Prevention/Alert Notice Form and give to an Occupational Health & Safety Committee member.

2. It is mandatory to report any incidents that resulted in:
- work related injury requiring treatment by a medical practitioner
- death or critical condition with serious risk of death or injury
- time loss injury
- occupational disease or allegations of an occupational disease
- major structural failure or collapse
- release of a toxic or hazardous substance; or
- near miss (no injury but had the potential to cause a serious injury)

3. Incident reports must be submitted within 72 hours. Investigations should consist of the worker and/or an employee representative, the supervisor (or delegate) and a member of the local Occupational Health & Safety Committee. If warranted, appropriate experts should also be included in an accident investigation.
4. Incident reports vary according to whether personnel are VGH employees, UBC employees, UBC students or visitors. Please refer to the diagram above and contact an OH & S representative. All forms are posted on the OH&S boards on each floor. UBC forms are also available at [http://riskmanagement.ubc.ca/z-forms-and-publications](http://riskmanagement.ubc.ca/z-forms-and-publications). VGH forms are available at [www.vcha.ca/ee/worksafe_and_wellness/more_information/ww_forms/page_20296.htm](http://www.vcha.ca/ee/worksafe_and_wellness/more_information/ww_forms/page_20296.htm).

5. WorkSafeBC must be informed immediately of any incident that results in:
   - death or critical condition with a serious risk of death
   - major structural failure or collapse of a building
   - major release of a toxic or hazardous substance
   - an accident required by regulation to be reported.

UBC Risk Management Services: [http://riskmanagement.ubc.ca](http://riskmanagement.ubc.ca)
WorkSafeBC: [www.worksafebc.com](http://www.worksafebc.com)
VCHRI: [www.vchri.ca/s/OHAS.asp](http://www.vchri.ca/s/OHAS.asp)
**APPENDIX I**

**Chemical Incompatibility Guide**

This list is only a guide. Specific incompatibilities are listed in MSDS sheets. Contact UBC Environmental Audit Officer (604-822-8762) for further information.

<table>
<thead>
<tr>
<th>CHEMICAL</th>
<th>INCOMPATIBLE WITH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic Acid</td>
<td>Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates</td>
</tr>
<tr>
<td>Acetylene</td>
<td>Chlorine, bromine, copper, fluorine, silver, mercury</td>
</tr>
<tr>
<td>Alkali and alkaline earth metals (powdered aluminum, magnesium calcium, lithium, sodium, potassium)</td>
<td>Water, carbon tetrachloride, or other chlorinated hydrocarbons, carbon dioxide, halogens</td>
</tr>
<tr>
<td>Ammonia (anhydrous)</td>
<td>Mercury (in manometers), chlorine, calcium hypochlorite, iodine, bromide hydrofluoric acid (anhydrous)</td>
</tr>
<tr>
<td>Ammonium Nitrate</td>
<td>Acids, powdered metals, flammable liquids, chlorates, nitrites, sulfur, finely divided organic combustible materials</td>
</tr>
<tr>
<td>Aniline</td>
<td>Nitric acid, hydrogen peroxide</td>
</tr>
<tr>
<td>Arsenic materials</td>
<td>Any reducing agent</td>
</tr>
<tr>
<td>Azides</td>
<td>Acids</td>
</tr>
<tr>
<td>Bromine</td>
<td>See Chlorine</td>
</tr>
<tr>
<td>Calcium Oxide</td>
<td>Water</td>
</tr>
<tr>
<td>Carbon (activated)</td>
<td>Calcium hypochlorite, all oxidizing agents</td>
</tr>
<tr>
<td>Chlorates</td>
<td>Ammonium salts, acids, powdered metals, sulfur, finely divided organic or combustible materials</td>
</tr>
<tr>
<td>Chromic Acid &amp; Chromium Trioxide</td>
<td>Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general</td>
</tr>
<tr>
<td>Chlorine</td>
<td>Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium, carbide, benzene, finely divided metals, turpentine</td>
</tr>
<tr>
<td>Chlorine Dioxide</td>
<td>Ammonia, methane, phosphine, hydrogen sulfide</td>
</tr>
<tr>
<td>Copper</td>
<td>Acetylene, hydrogen peroxides</td>
</tr>
<tr>
<td>Cumene Hydroperoxide</td>
<td>Acids (organic or inorganic)</td>
</tr>
<tr>
<td>Cyanides</td>
<td>Acids</td>
</tr>
<tr>
<td>Flammable liquids</td>
<td>Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens</td>
</tr>
<tr>
<td>Fluorine</td>
<td>All other chemicals</td>
</tr>
<tr>
<td>CHEMICAL</td>
<td>INCOMPATIBLE WITH</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Hydrocarbons (butane, propane, benzene)</td>
<td>Fluorine, chlorine, bromine, carbonic acid, sodium peroxide</td>
</tr>
<tr>
<td>Hydrocyanic Acid</td>
<td>Nitric acid, alkali</td>
</tr>
<tr>
<td>Hydrofluoric Acid (anhydrous)</td>
<td>Ammonia (aqueous or anhydrous)</td>
</tr>
<tr>
<td>Hydrogen Sulfide</td>
<td>Fuming nitric acid, oxidizing gases</td>
</tr>
<tr>
<td>Hypochlorites</td>
<td>Acids, activated carbon</td>
</tr>
<tr>
<td>Iodine</td>
<td>Acetylene, ammonia (aqueous or anhydrous), Hydrogen</td>
</tr>
<tr>
<td>Mercury</td>
<td>Acetylene, fulminic acid, ammonia</td>
</tr>
<tr>
<td>Nitrates</td>
<td>Acids</td>
</tr>
<tr>
<td>Nitric Acid (concentrated)</td>
<td>Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids and gases, copper, brass, any heavy metals</td>
</tr>
<tr>
<td>Nitrites</td>
<td>Acids</td>
</tr>
<tr>
<td>Nitroparaffins</td>
<td>Inorganic bases, amines</td>
</tr>
<tr>
<td>Oxalic Acid</td>
<td>Silver, mercury</td>
</tr>
<tr>
<td>Oxygen</td>
<td>Oils, grease, hydrogen, flammable liquids &amp; solids</td>
</tr>
<tr>
<td>Perchloric Acid</td>
<td>Acetic anhydride, bismuth and its alloys, alcohol, paper, wood, grease, oils</td>
</tr>
<tr>
<td>Peroxides, organic</td>
<td>Acids (organic or mineral) [avoid friction, store cold]</td>
</tr>
<tr>
<td>Phosphorus (white)</td>
<td>Air, oxygen, alkalis, reducing agents</td>
</tr>
<tr>
<td>Potassium</td>
<td>Carbon tetrachloride, carbon dioxide, water</td>
</tr>
<tr>
<td>Potassium Chlorate</td>
<td>Sulfuric and other acids</td>
</tr>
<tr>
<td>Potassium Perchlorate</td>
<td>Sulfuric and other acids</td>
</tr>
<tr>
<td>Potassium permanganate</td>
<td>Glycerol, ethylene glycol, benzaldehyde, sulfuric acid</td>
</tr>
<tr>
<td>Selenides</td>
<td>Reducing agents</td>
</tr>
<tr>
<td>Silver</td>
<td>Acetylene, oxalic acid tartaric acid, ammonium compounds, fulminic acid</td>
</tr>
<tr>
<td>Sodium</td>
<td>Carbon tetrachloride, carbon dioxide, water</td>
</tr>
<tr>
<td>Sodium Nitrite</td>
<td>Ammonium nitrate and other ammonium salts</td>
</tr>
<tr>
<td>Sodium peroxide</td>
<td>Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethylacetate, methyl acetate, furfural</td>
</tr>
<tr>
<td>Sulfides</td>
<td>Acids</td>
</tr>
<tr>
<td>Sulfuric Acid</td>
<td>Potassium chloride, potassium perchlorate, potassium permanganate (similar compounds of light metals such as sodium, lithium)</td>
</tr>
<tr>
<td>Tellurides</td>
<td>Reducing agents</td>
</tr>
</tbody>
</table>
APPENDIX II

TISSUE CULTURE STANDARD OPERATING PROCEDURES

BEFORE STARTING
i. Please sign up to use the biological safety cabinets (BSC). Bookings should be restricted to the time required. Respect of the needs of other users.
ii. Use a lab coat designated for tissue culture work only.
iii. Use clean gloves to open incubators (or wash hands with anti-microbial soap). Spray hands with 70% ethanol (EtOH).
iv. Wipe the outside of bottles with 70% EtOH before putting them in the water bath or BSC.

WORKING INSIDE THE BSC
i. To ensure sterility, the blower should be turned on at least 15 minutes before infectious materials are to be put in the hood. Many cabinets remain on at all times during the day – check with your supervisor. Check the BSC airflow gauge. [Normal reading is approximately 0.5 inches; higher readings indicate filter clogging; zero readings may indicate loss of filter integrity.]

NEVER place anything over the front or rear grilles.

ii. Wear disposable gloves and change them frequently.
iii. Wipe the inside surfaces of the hood with 70% EtOH.
iv. Wipe the outsides of all equipment, media bottles etc., with 70% EtOH before placing in BSC. {Use a stronger disinfectant (5% bleach) for spills.}
v. After all materials have been placed in the cabinet, wait 2-3 minutes before beginning work to purge any airborne contamination in the BSC.
vi. Keep materials in BSC to a minimum to ensure proper airflow. Do not crowd the work area and minimize movements to prevent airflow disruption.
vii. Work in the center of the work surface.
viii. Do not leave bottles open and uncapped. Do not reach over open bottles or touch the neck of the bottle. Place cap over the bottleneck loosely if bottle is to be used again.
ix. Maintain sterility. Be aware of what you touch throughout all procedures.

EXIT PROCEDURES
i. When finished the hood should be cleared and the area left clean and tidy for the next person. Clean up all spills inside or outside the BSC.
ii. Wipe the interior of the cabinet with 70% EtOH. Allow the cabinet to run for at least 10 minutes before shutting down.
iii. Wipe the outside of all flasks and bottles with 70% EtOH before returning them to either incubators or refrigerators.
iv. If you are the last person booked into the hood turn off the light and power outlets.

v. Empty solid and liquid biohazard wastes regularly.  

Waste disposal is the responsibility of every individual using the tissue culture room. Do not mix wastes.

vi. Ensure:
- that the incubator/fridge/freezer doors are closed correctly.
- that the incubators are operating properly. Check the temperature, the humidity tray, and the CO2 levels of both the incubator and the tank.
- that equipment is switched off (such as microscopes and centrifuges).

BIOHAZARDOUS WASTES

i. Dispose of all sharps (needles, glass Pasteur pipettes, contaminated plastic tips, etc) into the yellow biohazard sharps container provided. When 2/3 full, seal the lid, put your lab name, contact number and room number on the container & place in the hallway for housekeeping to collect.

ii. Put solid biohazardous wastes into the appropriate yellow biohazard bags (No liquids!).

iii. Do not put plastic pipette tips into yellow biohazardous waste bags because of the possibility of punctures. If contaminated put into the sharps container; if not put into regular garbage.

iv. Full bags should be sealed with a tape, labeled with your name, room number and contact local, then put into the hallways for housekeeping to collect for proper disposal.

v. Liquid wastes should emptied regularly before the container is full.

vi. Make sure media or other solutions are not pooling in the tubing. Check that the in-line filter between the pump and the vacuum flask regularly. Replace the filter if contaminated with media. Do not allow media into pump!

vii. Liquid wastes must be treated with bleach before discarding. Add bleach until the solution is 5% bleach, leave for at least 15 minutes and then discard down the sink with lots of water. Rinse the container several times with bleach. Rinse the tubing with 70% EtOH.

DECONTAMINATION PROCEDURES

All spills must be dealt with without delay.

Small spills:

i. Cover a small spill with absorbent paper to avoid the formation of aerosols.

ii. Disinfect the spill by slowly pouring on a disinfecting solution working from the outside in towards the center of the spill in a circular motion.

iii. Leave the spill long enough for disinfection to take place and then carefully wipe up wearing gloves.
iv. Pick up any glass using forceps.

**Larger spills:**

i. Larger spills and spills during centrifuging should be left to settle for 30 minutes before clean up to avoid inhalation of aerosols.

ii. Once all the material has been removed disinfect the area thoroughly.

**Bacterial, Fungal or Yeast Contamination**

Deal with any contamination immediately. **Inform your colleagues.** DO NOT open contaminated flasks, plates, etc. Dispose of contaminated cells/media as follows:

i. Do not open flasks or plates and DO NOT ASPIRATE media in the tissue culture room as this can spread contamination.

ii. Remove the plates to another room. Immediately add bleach & disinfect for 10-15 minutes. Discard with plenty of water.

iii. Dispose of all solid and liquid wastes as soon as possible (seal bags).

iv. Clean the water bath, incubator and BSC. Keep all other incubators closed during cleaning.

**CLEANING**

**Flow Hoods:**

i. Use 70% EtOH for cleaning. Do not use abrasives or caustic solutions as they can cause pitting and rusting.

ii. Switch off the hood and remove any equipment.

iii. Remove the work trays; front grille and tray supports.

iv. Clean all the surfaces inside the hood.

v. Clean the work trays, grille, and tray supports and then re-assemble.

vi. Clean all equipment before returning to the BSC.

**Incubators:**

i. Use 70% EtOH for cleaning. Do not use abrasives or caustic solutions as they can cause pitting and rusting.

ii. Carefully remove flasks/plates from the incubator and check for contamination. Wipe the outside of any uncontaminated cultures and place in a clean cabinet.

iii. While cleaning keep all other incubators closed.

iv. Remove incubator-shelves, shelf supports and humidity tray and clean individually.

v. Clean incubator chamber and doors, inside and out.

vi. Replace shelf supports and shelves. Make sure all shelves and supports are completely dry before returning to the incubator.

vii. Replace the humidity tray with sterile water or fresh 0.1% (w/v) Roccal.
viii. Allow the temperature and CO₂ levels to stabilize before returning flasks to the incubator.

**Water Bath:**

i. Empty and clean water bath regularly.

ii. Remove water and wash with 70% EtOH.

iii. Replace water and add an appropriate fungicide.

iv. Wash any equipment or bottles with 70% EtOH before placing (or replacing) them in the water bath.

**ACTIVATION OF UV LIGHT**

UV lights are not currently used at JBRC. To use secure the front panel and close completely before turning UV on. Use only during working hours and post a sign warning others that the UV lamp is on. A standard operating time for the UV light can be up to 1 hour. Do not leave UV light on overnight.
# APPENDIX III  
**VCHRI OH&S - MONTHLY CHECKLIST**

<table>
<thead>
<tr>
<th>PI:</th>
<th>Location:</th>
<th>Audit done by:</th>
<th>Date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>ITEM</th>
<th>YES</th>
<th>NO</th>
<th>N/A</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. ENVIRONMENT/FACILITY/EQUIPMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Physical Hazards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floors, halls and workstations clear of obstructions?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are freestanding shelf units fixed to walls?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Safety lip on shelves used for chemical and glass storage?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Electrical</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visual safety check of electrical equipment, ie frayed cords</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exits clearly marked and employees aware of location?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are fire extinguishers available and checked?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Fume Hoods/Biological Flow Hoods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoods are clear of clutter?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Is current Safety Inspection Certificate in a visible place?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Gas Cylinders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In upright position and secured to the wall?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Eye Wash Stations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are they working &amp; flushed on a regular basis?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Safety Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety equipment available? e.g. gloves, goggles, aprons, safety ladders, kick stools, etc.</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td><strong>2. WASTE DISPOSAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Disposal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proper containers available for all of the types of waste generated? Are they labeled correctly?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td><strong>SHARPS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GLASS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BIOHAZARDS:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RADIOACTIVE:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OTHER:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3. WORKPLACE HAZARDOUS MATERIAL INFO SYSTEM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All staff trained in WHMIS?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Safety training record up to date for all staff?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Labels</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals labeled and dated when received according to WHMIS guidelines? No abbreviations?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Manuals</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSDS sheets available and less than 3 years old?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Safety Program Manual available and up to date?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td><strong>4. CHEMICALS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Chemical list posted in the lab?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Chemicals stored compatibly and safely?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>• Acids &amp; flammables stored in their appropriate cupboards?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Old and unused chemicals disposed regularly?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Spill kit available and are they adequately stocked?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td><strong>5. RADIOACTIVE AND BIOLOGICAL SAFETY PRECAUTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Necessary approved protective equipment available for use?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Sharps containers available and disposed of appropriately?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Are work areas and equipment appropriately cleaned?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>“wipe test log” kept up to date?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Employees trained &amp; familiar with procedures developed for body substance precautions?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>UBC biohazard &amp; radiation certificates displayed &amp; updated?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td><strong>6. EMERGENCY PLANS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• List of staff working in this lab, including their phone numbers?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
<tr>
<td>Employees trained and aware of emergency plan for fire, disaster and earthquake?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td></td>
</tr>
</tbody>
</table>
**APPENDIX IV:**

**SAFETY TRAINING RECORD**

All employees must receive training and orientation in the hazards of their work sites and the procedures which must be followed to safely perform their work. This training record must be completed by each employee with the assistance of their supervisor. Once completed, keep a copy and return the original to either: Norma Cooper (Research Pavilion); Jeff Helm (Heather Pavilion); or Susan Moore (Jack Bell Research Centre). The completed forms will be kept on file for possible review by WorkSafeBC inspectors or internal auditors.

Name:  
Position:  
Start Date:  
Supervisor:  
Name:  
Phone No:  
Department:  
Local Safety Rep.:  

### Health, Safety & Environment Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Required?</th>
<th>Date completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHMIS Training</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Laboratory Chemical Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory Biological Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radionuclide Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction to Lab Safety</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Care (UBC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation of Dangerous Goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Warden Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Committee Training</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupational First Aid Level 1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Safety Related Course(s):**
Please initial and date each of the following declarations that you are comfortable with.

I have been informed of the rights of responsibilities of workers and supervisors under WorkSafeBC regulations including my Right to Refuse.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the department’s safety policies, safety training requirements, inspection programs and the OH & S Committee members.

Date:   Worker’s Initials:    Instructor’s Name:

I have been trained in proper emergency procedures for my work site and know how to contact emergency personnel.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of procedures for working alone and after hours in my work area; how to minimize the risks to my personal safety; and how to summon assistance.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the procedures in place to avoid violence and threats to personal safety in the workplace and how to summon assistance.

Date:   Worker’s Initials:    Instructor’s Name:

I have received training with the Workplace Hazardous Material Information System and how to safely work with chemical hazards.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the safety concerns in my work area and been trained in how to best manage those hazards.

Date:   Worker’s Initials:    Instructor’s Name:
I understand that I must be trained in the proper use of equipment and instructed on the proper procedures for new tasks or methodologies.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the proper use of Personal Protective Equipment (PPE) for my work and I understand that I must check with my supervisor on what PPE is required for any new procedure.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the proper procedures for First Aid and for reporting injuries, accidents, potential hazards or illnesses.

Date:   Worker’s Initials:    Instructor’s Name:

I have been informed of the purpose and mandate of the Department of Health Safety and Environment at UBC and know where to go for more information.

Date:   Worker’s Initials:    Instructor’s Name:
APPENDIX V

PERSONAL SAFETY CHECKLIST

This checklist is to help you become familiar with the hazards and safety features in your work area. You are required to complete this form and return it to the WHMIS Instructor.

Name: ___________________________ Date: ___________________________

PI: ___________________________ Dept.: ___________________________

Department’s Street Address: __________________________________________

Building Name & Room #: __________________________________________

Emergency Numbers:

Fire: _______________ First Aid: _______________

Hazardous Spills: _______________ Security: _______________

Location of nearest.....

Fire Alarm Pull: __________________________________________

Fire Extinguishers: __________________________________________

Fire Exits: __________________________________________

Evacuation assembly point: __________________________________________

Incident, Hazard & WCB Forms: __________________________________________

Eyewash Station______________ Emergency Shower ______________

First Aid Kit _______________ Spill Kits/Cart ______________

MSDS sheets _______________ Glass Waste ______________

Who is your....? (Name & aPhone No.)

Safety Committee Representative: __________________________________________

Fire Warden: __________________________________________

Emergency Lab Contact: __________________________________________

VCHRI Safety Orientation Guide – April 27, 2012
**Hazard Identification List**  (Identify any hazards in your work area)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Orientation Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>