



UNIVERSITY
OF MANITOBA

LABORATORY SELF-INSPECTION CHECKLIST

Environmental Health and Safety Office	
Main Office	Bannatyne Office
191 Frank Kennedy Centre Winnipeg, MB, R3T 2N2	T248-249 Basic Sciences Bldg Winnipeg, MB, R3E 0W3
Tel: 474-6633 FAX: 474-7629	Tel: 789-3613 FAX: 789-3906

Building & Room			
Department			
Inspected by (Name(s) and Title(s))			
PI/Supervisor		Tel:	E- mail
List Labs/Rooms under your Supervision			
Date of Inspection			

Complete one checklist per principal investigator and return to the EHSO location nearest to you (Keep the original for your record). If one or more of laboratories differ from what you state for items answered below indicate that in the "Comments" section.

<i>Note: See Appendix for relevant explanations or extra information to questions marked with an asterisk *</i>					
PART A - PI/SUPERVISOR SPECIFIC		Yes	No	N/A	Comments
1.	General Policies, Responsibilities, Due Diligence and Awareness				
1-1	Are working alone policy and protocols in place?				
1-2*	Is an Incident/Accident Reporting procedure in place?				
1-3	a. Does the Principal Investigator/Supervisor have Biosafety Permit Registration?				
	b. If yes, Permit #				
1-4*	Is there any immunization policy/standard operative for lab personnel?				
1-5	Has the Department/Supervisor/Principal Investigator provided documented Laboratory Biosafety training?				
1-6	Do the lab personnel know who the Departmental WHMIS Coordinator is?				
1.7	a. Are lab personnel (students and staff) WHMIS trained?				
	b. Is Generic WHMIS training documented for all lab personnel?				
	c. Do the lab personnel receive Refresher WHMIS/training?				
	d. If answer to 'c' is yes, how often?				
1-8	a. Are MSDS located in the lab, accessible and current?				
	b. Do all lab personnel know how to access MSDS?				
1-9	Do the lab personnel know the laboratory waste disposal protocol?				
1-10	Are lab personnel proficient in the use of Biological Safety Cabinets (BSC) and can they demonstrate knowledge of biosafety principles and equipment function?				
1-11	Is every one that works in the lab instructed on how to identify radiation hazards and what to do in the event of an emergency?				
1-12	Are the lab - personnel orientated about:				
	a. lab-specific hazards/risks?				
	b. equipment hazards and operational safety?				
	c. use and location of personal protective equipment (PPE) (Lab coats, different types of gloves, Face shield, Splash Goggles/Safety glasses, respirators)?				
1-13*	Do the lab personnel know how to use a fire extinguisher?				

	PART B – LAB SPECIFIC	Yes	NO	N/A	Comments
2.	Signage, Postings, Resource materials and Security:				
2-1*	Is there EHSO signage at the entrance to the lab indicating emergency contact info, controlled product volumes and hazards inside the lab?				If no sign, contact EHSO at 474-6633 to arrange for a sign template.
2-2*	Are Post Exposure Protocols posted?				
2-3	Are Emergency contact information and laboratory classification posted at every laboratory entrance door(s) for every Radioisotope permit holder?				
2-4	Are chemicals labeled in accordance with WHMIS?				
2-5	Are labels intact and legible?				
2-6	Are Laboratory Waste Disposal Charts (for Chemical, Biological and Radioactives) displayed?				
2-7	Are Health Canada Laboratory Biosafety Guidelines and U of Manitoba Biosafety Guide available in the Lab?				
2-8	Are labs locked when no one is in attendance?				
2-9	Is the most recent Internal Radioisotope Permit posted in <i>all rooms</i> listed as approved locations on the permit?				
2-10	For Basic and Intermediate Level Radioisotope Labs, is the Waste Chart for Radioisotope Laboratory posted?				
2-11	Is the updated Radiation Safety Manual available?				
2-12	Is a Radiation Safety Records Binder visible in every room listed as an approved location?				
2-13	Are Radiation Warning Symbols displayed on Radiation work areas and Radiation storage areas whenever radioactive material or radioactive contamination are present and removed when the radioactive material is removed?				
2-14	Is the Radiation Warning Symbol (magenta on yellow background) posted on the entrance door of every lab containing more than 100EQs? 100EQ of P- 32 is 7uCi. For a complete list see RSP-490, RSM-2005.				
3.	Emergency Safety Equipment				
3-1*	Is there an Eye Wash/Emergency Shower available?				
	a. If yes, is it clearly identified?				
	b. If yes, is it unobstructed?				
	c. Do you and the lab personnel know where it is located?				
3-2	Is there a First Aid Kit?				
	a. If yes, is it properly stocked?				
	Fire Protection and Life Safety				
3-3*	Are there an adequate number of exits?				
3-4	Are the fire exits unobstructed, clearly identified and easily visible?				
3-5*	a. Are there fire extinguishers available in the lab?				List type and size
	b. If yes, are they unobstructed?				
3-6*	a. Are compressed gas cylinders properly anchored to solid support and restrained?				
	b. Are incompatible gases segregated?				
3-7*	Are Flammables/Combustibles including waste solvents stored in accordance with Fire Code?				
3-8	Is the electrical control panel unobstructed? (3 feet in front and access to the door clear)				
3-9	Are electrical cords in good condition? (i.e. no frayed or cracked cords, insulation intact).				
3-10*	Are there adequate electrical outlets? In other words, <i>not</i> overloaded?				

3-11	Are electrical systems and cords properly grounded? (i.e. no two-prong adapters in three-prong outlets)				
4.	Risk assessment - General and Operational/Physical Requirements				
4-1	Are equipment and machine guards in place and operable?				
4-2	a. Are 'NO FOOD OR DRINK' signs affixed on refrigerators, freezers and Microwaves used for controlled products?				
	b. Is a policy of No Food, Drink storage and consumption in the lab is enforced?				
4-3	Is the laboratory furniture (chairs etc.) made of materials that can be easily surface decontaminated?				
4-4	Are working surfaces of bench tops chemically resistant/non- absorptive?				
4-5	Are the work surfaces free of cracks, holes and defects?				
4-6	Is the floor covering seamless/continuous and coved to wall?				Specify concrete or vinyl
4-7	Are separate eating rooms available?				
4-8	a. Is there a hand washing sink in the lab?				
	b. Are hand washing soap and paper towels provided?				
4-9*	a. Are Fume hoods functional/working?				
	b. Do the fume hoods have visual tell-tale or mechanical device that indicates no or low air- flow?				
	c. Are fume hood locations appropriate?				
	d. Are there chemicals/materials/equipment stored in the fume hood blocking baffles?				
4-10	Are Laboratory Spill Kits (Chem – Acid, Base and Solvent, Bio) available, identified and in easily accessible location?				
4-11*	a. Are Chemical storage locations appropriate? (Cool, ventilated area, away from source of ignition)				
	b. Are Chemicals labeled and stored according to compatibility?				
	c. Are Chemicals not stored on the floor?				
	d. Are Liquid Chemicals stored below eye level?				
4-12*	Is flammable materials storage refrigerator/freezer available and properly labeled?				
4-13	If you have Cold Rooms /Environmental Chambers				
	a. Are they intrinsically safe?				
	b. Do these rooms have failsafe exiting?				
4-14	c. Do they have emergency alarms for oxygen deficiency?				
	Are liquid nitrogen and other cryogen s and solid carbon dioxide (dry ice) used?				
	a. If yes, are they stored in properly ventilated area?				
	b. Are lab personnel trained about hazards of cryogens?				
	c. Are lab personnel provided with proper PPE for handling cryogens – full face shield, over safety glasses, <u>loose fitting</u> thermal insulated or leather gloves?				
5.	Housekeeping				
5-1	Are aisles, paths of egress, and exits kept clear from obstructions-not cluttered and a minimum 3 ½ feet wide?				
5-2	Are floors free of oil, grease, liquids, broken and uneven surfaces (tripping hazards) or sharp objects?				
5-3	Is all trash placed in proper containers and disposed of properly? (e.g., sharps, empty chemical containers, broken glass, used toner, etc.)				
5-4	Are materials stored so that they are stable and do not protrude?				
5-5	Are there any materials blocking ventilation or affecting air movement?				
5-7	Are the work surfaces/bench tops clean, organized and uncluttered?				

5-8	Are sinks, hoods and refrigerators clean, uncluttered?				
5-9	Overall, is the general appearance/housekeeping of the Laboratory good, clean and orderly?				
6.	Laboratory Safety - Chemical/ WHMIS				
6-1*	Is a current Chemical Inventory maintained and available?				See "a" under Notes on page 6 in Appendix
6-2	Are all potentially unstable chemicals (e.g., ethers and other peroxidizable organic chemicals, picric acid) labeled with a date of receipt?				
6-3	Are Controlled Substances (those requiring Health Canada permit) are secured (locked)?				
6-4	Are 95% Ethanol kept secured and usage log maintained (Federal Government Requirement)?				
7.	Laboratory Safety – Biological				
7-1*	a. Are Biological Materials – bacteria, virus, fungus, parasites, human/animal blood, and toxins - used?				
	b. What is the Containment Level (CL) of the lab? <input type="checkbox"/> CL 1 <input type="checkbox"/> CL 2 <input type="checkbox"/> CL 3				
	c. Are all places where biohazards are present labeled as such?				
7-2	Are appropriate disinfectants available?				
7-3*	a. Are Autoclaves available?				
	b. Are they properly located and vented through local exhaust hoods?				
	c. Are autoclaving procedures validated and a log maintained?				
7-4	Are Biohazardous Waste Disposal Charts visibly displayed in the lab?				
7-5	a. Are Standard Operating Protocols (SOPs), Lab Safety Manual available?				
	b. Are MSDS for infectious agents available?				
7-6	Are Freezers containing biohazardous materials regularly monitored?				
7-7*	a. Are Biological Safety Cabinets (BSC) available?				
	b. Are they currently certified for use with aerosol producing procedures involving biological materials?				
	c. Is the equipment location proper?				
7-8	Are Equipment decontamination protocols/ procedures available?				
7-9	Are separate space and hooks available to hang up lab coats?				
	Animal Use				
7-10	Do you have animals used for research in your lab?				
7-11	Do you use any inhaled anesthetics e.g. Ether, Chloroform, Nitrous oxide, Halothane, Methoxyflurane, Enflurane, Isoflurane, Desflurane, Sevoflurane or others?				If yes, specify
8.	Laboratory Safety - Radiation				
8-1	For Intermediate Level Radioisotope labs, is entry restricted to persons listed on the permit or those in accompanied by permitted workers?				
8-2	Are radioactive chemicals manipulated on absorbent plastic backed pads?				
8-3	Are lab coats and disposable gloves worn when working with radioactive chemicals?				
8-4	Are radioactive materials spill kits available and accessible?				
8-5*	a. Are Radioactive stock vials stored in a locked box, fridge or cupboard?				
	b. Are all radioactive materials kept secure?				
8-6	Are radioactive material inventory and contamination monitoring records maintained in the Radiation Safety Records binder?				
8-7	a. Are dosimeters worn as stipulated on the Permit?				
	b. Is the lab monitored for radioactive contamination within seven days of each use of				

	radioactive chemicals and recorded in the Radiation Records binder?				
9.	Waste Disposal				
9-1	Are laboratory wastes labeled with the following information: 1. Waste Identity (Common Chemical name of the material, no abbreviations, no formulas), 2. Concentrations, 3. Origin/Location, 4. User/Generator Name and Phone No. and 5. Precautionary Phrases?				
9-2	a. Are laboratory wastes (chemical, biological and radioactive) properly separated (segregated) in appropriate containers (e.g., autoclaved/disinfected waste, biomedical sharps at source)?				
	b. Is there adequate supply of such containers available?				
9-3	Are laboratory chemical wastes stored according to compatibility?				
9-4	Are Radioactive waste properly labeled, stored and disposed in accordance with U. of M Radiation Safety Program requirements?				
9-5	Are containers of radioactive waste labeled with the Radiation Waste tag with all the required information?				

Appendix “A”

Definitions

CPS	The University of Manitoba Controlled Products Standard . This standard can be found at: http://www.umanitoba.ca/campus/health_and_safety/cps97/index.shtml . The Standard has two parts – Part A relates to Design and Part B relates to Practices which includes information about storage, compatibility of chemicals etc.
Controlled Products	All chemical, biological and radioactive products regulated under WHMIS and the Canadian Nuclear Safety Council (CNSC).
Cryogenics	Cryogenic fluids (liquefied gases) are characterized by very low temperatures below -73.3°C (-100°F). Examples are CO ₂ , N ₂ , He etc.
PPE	Stands for Personal Protective Equipment. PPE is a device or clothing used to reduce worker exposure to workplace hazards by creating a barrier between the worker and the workplace hazard when engineering and administrative controls are not feasible or ineffective in reducing these exposures to acceptable levels. Examples are : appropriate Safety Eye Wear – Safety Glasses, Safety Splash Goggles, Safety Splash Shield, Respirators, Laboratory Coats and Aprons, appropriate Gloves compatible with the hazard etc.
WHMIS	Workplace Hazardous Materials Information System
Fire Compartment	An area where the walls, doors, openings, ceiling and floor have a fire resistance rating. For laboratories, the required fire resistance rating is 1 hour.

Information/Explanations/Links

1-1 Working Alone Policy	For information go to http://web2.gov.mb.ca/laws/regs/pdf/w210-105.88r.pdf
1-2 Incident/Accident Reporting	For information go to http://www.umanitoba.ca/admin/human_resources/ehso/occ_health_comp/aiwcb.html
1-4 Immunization Standard	For information on U of M. Standard go to: http://umanitoba.ca/admin/human_resources/ehso/occ_health_comp/occhealthwcb.html http://umanitoba.ca/admin/human_resources/ehso/occ_health_comp/immunization.html
2-1 Lab Signage	Signage on door should indicate the hazards in the lab, the maximum quantities of controlled products in the lab, special precautions and emergency contacts and after hour telephone number. For more information go to: http://umanitoba.ca/admin/human_resources/ehso/geninfo/signage.html .
2.6 Post Exposure Protocol	For information on Post Exposure Protocol go to http://www.umanitoba.ca/admin/human_resources/ehso/media/BiosafetyGuideMarch05.doc
3-1 Emergency Shower and Eyewash	Emergency shower and eyewash must be located away from sources of electricity to prevent shock and meet the most current ANSI Z358.1 standard.
3-3 Exits	Two exits are required for labs – (a) over 500 square feet in area or (b) having a fume hood near one exit or (c) having an occupancy greater than 6 or (d) using compressed gas cylinders or cryogenic container containing flammable gas or a gas with a Health Hazard of 3 or 4.

3-5 Fire Extinguishers	A fire extinguisher should be located at the entrance to the laboratory and next to equipment where the danger of fire is great. Common types of fire extinguishers are: Type A (Pressurized water for Class A fires involving ordinary combustibles such as paper, cloth , cellulose), Type BC (Carbon dioxide for B and C class fires involving flammable liquids (Class B fires) and electrical fires (Class C fires)); Type ABC (Dry Chemical for Class A, B and C fires). A minimum of 5 lb size - BC(Carbon dioxide) or ABC (Dry Chemical) type extinguisher is required.
3-6 Compressed Gases	The recommended maximum number of compressed gas cylinders in a <i>fire compartment</i> is two (2) or as permitted for laboratories under Manitoba Fire Code.
3-7 Flammables/Combustibles	Combustibles include but are not limited to cardboard boxes, Styrofoam, packaging material, etc.
3-7 Flammable Storage Cabinet	<p>The maximum quantity of flammable liquids and combustible liquids permitted in a flammable storage cabinet shall be 500 L, of which not more than 250 L shall be Class I liquids.</p> <p>Consideration has to be given to the storage in the lab of quantities of dangerous goods other than flammable liquids and combustible liquids as these may not be permitted under the Manitoba Fire Code.</p> <p>Consideration must also be given to flammable liquid waste</p> <p>The maximum quantity of flammable liquids and combustible liquids permitted under the Manitoba Fire Code for an open laboratory is 300 L of which not more than 50L is Class I liquid or what is required for a normal day operation.</p>
Flammable materials	<i>Only flammable liquids requiring refrigeration (usually determined by experimental requirements) may be stored in intrinsically safe refrigerators and freezers. (These are commercially sold as Explosion Proof and Flammable Materials Storage Refrigerators/Freezers).</i>
3.10 Electrical	Use correct size extension cords only when necessary and only on temporary basis . About overloading, consider the following: If the electrical circuit is 110 volts and the fuse is 15 amps (i.e., the outlet is for 15 amps), then the circuit will handle $15 \times 110 = 1650$ watts. The load should be lower than 1650 watts. If the total wattage for the equipment plugged into the circuit is over 1650 watts, then the circuit is overloaded. For more information go to: http://www.cdc.gov/niosh/docs/2002-123/2002-123a.html and http://www.cdc.gov/niosh/injury/traumaelec.html
4-9 Fume Hoods	<p>Must be located away from the primary laboratory exit. Fume hoods shall be located out of the normal traffic pattern and away from interfering room air currents such as those caused by doorways and general ventilation devices such as air diffusers. A minimum of 12 inch clearance on both sides of fume hoods is required for proper servicing of fume hood.</p> <p>The safe operating range of a fume hood face velocity is 80 to 120 linear feet per minute (lfpm) at 11 inch sash height. A label indicating this is affixed to the front face of the fume hood at the proper sash height. Fume hoods must not be used to store chemicals.</p>
7-1 Biological Materials	Laboratories using biological materials must follow the Health Canada Laboratory Biosafety Guidelines. EHSO can provide assistance in procuring the guidelines.
7-1 Biological Materials	Decontamination may include: disinfection, autoclaving, and/or incineration.
7-1 Containment Level (CL)	These are selected to provide the laboratory worker with a description of the minimum containment required for handling the organism safely in the laboratory. (<i>In the United States of America and in many others, the term Biosafety Level (BSL) is used.</i>)

CL1 does not require special design features beyond those suitable for a well designed functional laboratory.

CL2 requires primary containment devices such as BSCs and centrifuges with sealed rotors or safety cups as well as PPE (gloves, lab coats and protective eyes, hand washing sinks and autoclaves).

CL3 requires additional primary and secondary barriers to minimize release of infectious agents into the immediate laboratory and the environment. Additional features to prevent transmission of CL3 organisms are respiratory protection, HEPA filtration of exhausted laboratory air and strictly controlled laboratory access.

7-3 Local Exhaust Hoods

Local exhaust hoods must be designed to efficiently exhaust fumes, aerosols or gases that are hazardous, odoriferous or explosive either at the source or near the floor level

7-9 Biological Safety Cabinets (BSC)

A minimum of 12 inch (30 cm) clearance on both sides and the rear of Biological Safety Cabinets is required for proper servicing of cabinet. A 12-14 inch clearance above the cabinet may be required to provide for accurate air-velocity across the exhaust filter surface. The ideal location for the BSC is remote from the entry (e.g., the rear of the laboratory away from traffic. Open windows, air supply diffusers/registers or laboratory equipment that creates air movement (centrifuges, vacuum pumps) should not be located near the BSC. Chemical fume hoods must not be located close to the BSC. A BSC must be certified when installed, moved to another location, and annually thereafter. For information on certification, visit EHSO web page and look under Biological Safety Program.

8-5 Radioactive Products

Radioactive products must be stored in a secured (lockable) location.

NOTES -

a. Inventory Database Initiative

EHSO has introduced a University wide Controlled Products (Chemical, Biological and Radioactive materials) web based Inventory Database called "Environmental Health and Safety Assistant" (EHSA). For general information on the database go to: http://www.umanitoba.ca/admin/human_resources/ehso/ehs_db/index.html.

The departments can maintain their Controlled Products Inventory by making use of this web based Database. For more information call Evelyn Froese at 789-3477.

b. Lab Safety

A safety corner in a laboratory would have the following items:

- Safety communication centre such as a dedicated bulleting board,
- MSDS for the chemicals in the lab (A WHMIS MSDS must not be older than 3 years from the date of production or revision)
- First aid kit,
- Spill kit,
- Emergency telephone or other communication device.

An emergency telephone accessible to staff / students is required on each floor and preferably in each laboratory. The emergency telephone must be accessible 24 hours a day, 7 days a week.

c. Transportation of Controlled Products

Carts used for transporting controlled products should be designed with sides, secondary containment and wheels that will not catch in cracks or floor gaps as at the elevator.

Compressed gas cylinders must be transported secured on a dolly/cart with chain/straps securely buckled.