

Laboratory Inspection Checklist

Instruction for completion

The laboratory inspection form LSMSF12 should be used by principal investigators (PI) and/or lab owners when completing their annual in-house inspections. The checklist is divided into four sections: **Section A** is general and applies to all laboratories, **Section B** is intended for laboratories where **chemicals** are handled/stored and **Sections C and D** are intended for authorized **radiation** and **biohazard** laboratories, respectively. Complete Section A and the other sections applicable to your specific laboratory. A verification/comments section is provided to provide justification or additional information. For additional support, please contact us at labsafety@mun.ca. Below are the instructions for each line item in the inspection form. Corrective action timelines for each item are provided in parentheses after each instruction.

Section 1: General Laboratory Safety

1. Access to any Memorial laboratory is restricted to authorized personnel and authorized visitors only. Authorized personnel are those who work for the lab principal investigators (PI) (such as staff and students) that have completed the pre-requisite safety training and are authorized to work independently within the lab. Authorized visitors are those escorted at all times by an authorized worker (this includes staff/students who have not yet completed all their pre-requisite training, or visitors such as visiting faculty/students). Note: Memorial ancillary workers (e.g. FM, Technical services) must request access to the lab from authorized personnel. **(1 month)**
2. Is there a lockable door separating the lab (i.e., “dirty” area) from the public (i.e., “clean”) areas? What type of lock is used? **(1 month)**
3. Are hazardous materials left unattended in the lab (e.g., on benches or in unlocked cabinets/refrigerators)? **(Immediate)**
4. Can unauthorized individuals access hazardous materials within the lab (i.e., are storage areas unlocked? Are doors open?). **(Immediate)**
5. Can windows along the barrier of the lab/containment zone open? If so, how is security and pest control maintained when they are open? If windows are screened, check to see if they are intact **(3 months)**

6. Are the lab doors kept closed at all times? This is required for security/access control and for proper mechanical functioning (e.g., HVAC). Check to ensure that doors are not left open. **(3 months)**
7. Hazard signage for applicable hazards (e.g., BIO, RAM, chemicals, x-rays, lasers, etc.) is required at each entrance to the lab in which the hazard(s) is used/stored. Check to ensure that the appropriate signs are posted and completed with all required information. **(3 months)**
8. Are all internal clearances (e.g., biosafety certificates, radioisotope user permits, etc.) available for each applicable researcher in the lab? Verify that current clearances and authorized worker lists are available in the lab. **(3 months)**
9. Is hazardous signage (e.g., RAM stickers) used when the hazardous material is no longer present? If so, this is considered “frivolous” and must be removed. **(3 months)**
10. Are ANSI-compliant eyewash and shower facilities available in the lab? Verify that these facilities are available. **(1 month)**
 - a. Are eyewash/shower stations identified by signage and accessible (not obstructed)? **(6 months)**
 - b. Are weekly checks are completed and documented (is the form completed weekly)? **(6 months)**
 - c. Are annual inspection tags affixed to the unit(s)?
11. Are spill kits for the relevant hazards available in the lab? Check to make sure that the kits are adequately stocked and that personnel know how to use them (this should be based on a written safe work procedure (SWP) and documented in the individuals training log). It is also a good idea to periodically check the kit to ensure all required items are available (and sign off on this check). **(1 month)**
12. Is there a fire extinguisher available in/near the lab? **(3 months)**
 - a. Check to see that it has been certified within the last 12 months. **(6 months)**
13. Is there a fully stocked first aid kit available? Check to see that there are no expired items and that its location is identified by visible signage. **(3 months)**
14. How would you communicate with individuals outside of the lab in the event of an emergency? Is there a phone, intercom or radios in the lab? Is there glass in the door through which you could communicate? Is there a procedure in place to use cellular phones in the lab? Indicate the method used. **(3 months)**
15. Is dedicated personal protective equipment (PPE) available for everyone in the lab? (“dedicated” means it is used in that lab only, and not transported to be used between labs). Indicate the PPE available and used by personnel, and how these are donned/doffed to reduce contamination (i.e., what order). Also, identify any additional “activity-specific” PPE used. (1 month)
 - a. Is space available near the lab entrance for storing PPE? **(3 months)**
 - b. Is PPE worn outside of the lab?

- c. Is PPE decontaminated before it is washed (or is it disposed as hazardous waste if contaminated)? **(1 month)**
 - d. Are personal items/clothing stored away from lab PPE and other “dirty” areas? **(1 month)**
16. Provide the most recent certification date for the chemical fume hood(s). If no fume hood is available, but you work with hazardous materials, please indicate this in the comments. Are materials stored in the fume hoods when not being immediately used? Check to ensure that the flow failure alarm is working properly. **(1 month)**
17. Are there materials in the lab that do not need to be there? Are there items that may be difficult to clean/decontaminate on the floor or in a less than ideal area that can be moved to a better location? **(3 months)**
18. Surfaces and furniture within all Memorial labs must be non-absorbent to facilitate efficient cleaning and decontamination. Check to ensure that there are no items composed of absorbent materials (e.g., chairs) or damage to surfaces which exposes absorbent materials (e.g., damaged bench tops, floors, walls, etc.) within the lab. **(3 months)**
19. “Core” safety training is required based on the hazards found in the lab (identified on the lab signage). Check to ensure that up to date training awards are available for personnel with access to the lab. Identify any individuals who do not have current awards for the required training. **(1 month)**
20. Safe Work Procedures (SWP) should always be followed when performing your work in the lab. Ensure that personnel are working with hazardous materials safely (i.e., using PPE, shielding for RAM, containment for BIO, etc.) and according to SWP’s. Is there a written Laboratory Safety Plan (LSP) available in the lab? **(3 months)**
21. Are areas within the lab designated for “clean” work (e.g., computer or paperwork) separate and distinguished from the “dirty” work areas? **(1 month)**
22. Have there been any incidents since the last inspection? Were they reported to EHS? Were records maintained?
23. Hand washing is the best way to minimize contamination and the potential for laboratory-acquired infections (LAI). Is hand washing required and are amenities (e.g., Soap and towels) available in the lab? **(1 month)**
24. An open wound is a route of exposure for many hazards. Ensure that open wounds are covered with waterproof bandages and that extras are available in the first aid kit. **(1 month)**
25. Exposed jewelry is a source of contamination and is prohibited, particularly in biohazard laboratories. Check to ensure that jewelry has been removed or covered prior to entering the lab. **(1 month)**
26. Check to see if there is evidence of food/beverage consumption (e.g., containers on benches or in the trash) in the lab or containment zone. Consumption of food/beverage is strictly prohibited in all Memorial labs/containment zones. **(1 month)**

27. Check to see that all personnel with long hair have it restrained while working in the lab. Restraining long hair minimizes the likelihood of contamination. **(3 months)**
28. If sharps are used, can something less hazardous be used in its place? Are CSA-approved sharps containers available in the lab and used for the disposal of sharps? **(1 month)**

Section B: Chemical Safety

29. Lab, or job-specific training is the hands-on training you receive in the lab based on the hazards/techniques/equipment etc. that you actually use. Check to ensure that records are available for lab-specific WHMIS training (i.e., chemical handling). **(1 month)**
30. Are chemicals stored in proper cabinets? Corrosives should be stored in chemical resistant corrosives cabinets with secondary containment. Flammable chemicals greater than 4L must be stored in certified flammables cabinet. Some highly hazardous chemicals have special storage requirements (e.g., locked away). Are liquids stored below eye level? Check to ensure that chemicals are stored appropriately and that cabinets are in good condition. For “high hazard” chemicals, a safe work procedure (SWP) should be available describing its use, storage and disposal requirements. **(1 month)**
31. While in storage, incompatible chemicals must be adequately segregated as outlined on MUN’s [chemical compatibility chart](#).
32. Is a chemical inventory available and up to date for all of the chemicals found in the lab? Are safety data sheets (SDS) available and up to date for all of the chemicals found in the lab? Indicate if the EHS Assistant is used for inventory management and if it is accurate/up to date. **(3 months)**
33. Are compressed gas cylinders stored properly in the lab? These should be capped when not in use, and securely attached (with a strap or chains at 2/3 cylinder height) to a solid, immovable surface (e.g., wall bracket). Incompatible gasses must be adequately separated. **(1 month)**
34. Are chemicals disposed of through the EHS disposal procedure (if so, indicate this). If not, describe how chemical waste is disposed. Are appropriate containers for chemical waste available in the lab? Describe container type(s). **(1 month)**
35. Are all chemical containers labelled according to WHMIS requirements [i.e., with product name (matching the SDS product name), safe handling precautions (may include pictograms or other supplier label information), a reference to the SDS (if available)]. **(3 months)**

Section C: Biological Safety

36. A current inventory (in the format described in the biological safety manual) of all biohazardous materials must be maintained and available for inspections at all times. Verify that the inventory

is current. Describe how materials stored outside of the CZ are restricted from unauthorized access (e.g., in a labelled, locked freezer). **(3 months)**

37. If the use of a BSC is required based on the approved risk assessment (i.e., biosafety certificate application), this will be listed as a condition of approval on the biosafety certificate. If required, verify that it is used as required. Provide the most recent certification date listed on the sticker posted on the BSC. Describe how BSC functionality is verified [e.g., viewing airflow gauges to confirm fan function, or holding a tissue at the sash to confirm air is drawn into the BSC, etc. (refer to [BSOP06](#))]. **(Immediate)**
38. If vacuum systems are used, describe how the pump is protected from contamination (e.g., use of in-line filter and/or bleach trap). Describe what is used. If in-line filters are used alone, is there a written procedure in place which describes how the functionality of the filter is verified (e.g., visual confirmation of their integrity and the absence of visible contamination, replacement frequency, etc.)? **(1 month)**
39. Describe the type(s), concentration(s) and contact time(s) for the disinfectant(s) used. Verify that the disinfectant(s) used is effective against the specific biohazards used. Are working solutions labelled with the preparation date as a means to ensure adequate replenishment? **(1 month)**
40. Describe how solid and liquid biohazardous wastes are decontaminated prior to final disposal. **(Immediate)**
41. If you transport waste outside of the CZ prior to sterilization, do you follow [BSOP04](#)? Describe what you do to ensure that non-CZ areas do not become contaminated (e.g., double containment). **(1 month)**
42. Describe the frequency of surface decontamination (e.g., before and after work). **Note** that the use of permanent (i.e., taped down) bench covering prevents adequate surface decontamination and is not permitted. **(1 month)**
43. If PPE (e.g., lab coat) becomes contaminated, describe how it is decontaminated (bleach treating (soak) or autoclaving) before laundering. **(1 month)**
44. If an autoclave is used for decontamination of biohazardous materials, is it equipped to monitor and record the operational parameters (e.g., does it provide a print-out of the time/temp/pressure etc.)? If an autoclave is used for decontamination of biohazardous materials, are the parameters used **validated** using biological indicators with representative loads at least annually? Verify that annual validation records are available (provide date of testing). Is the efficacy of each run **verified** by using appropriate tools (e.g., autoclave tape, biological indicators, etc.)? **(1 month)**
45. Lab-specific biosafety training must include at least the following (described on the [biosafety training log](#)):

- a. Identification of the hazards associated with operational features of the work undertaken (i.e., laboratory protocols). This should include symptoms of disease/illness caused by the infectious materials, the necessary precautions to prevent exposure/illness (e.g., immunizations, etc.) and precautions to prevent biosecurity incidents.
 - b. The relevant physical design and operation of the containment zone (i.e., laboratory clean and dirty areas) containment systems (e.g., biosafety cabinets, incubators, etc.) and laboratory equipment used.
 - c. Emergency response procedures – this must be provided annually and cover seldom-used procedures such as: location/use of spill kits, location/use of eyewash/showers, location of first aid kit(s), location of fire extinguisher(s), incident reporting procedure (MIMS, MUNSafe), biohazard exposure response, etc. **(1 month)**
46. If any of the described incidents have occurred, whether intentionally or inadvertently, Memorial's BSO must be notified immediately. **(Immediate)**

Section D: Radiation Safety

47. A contamination meter is a device used to detect radioactive contamination on surfaces, and measures in counts per unit time (cps/cpm) or directly in Bq/cm² (as opposed to a survey meter which measure dose rate in Sv/hr). If a hand-held contamination meter is used, please indicate this. If not, indicate that liquid scintillation is used during weekly wipe testing. Ensure that the wipe map used for weekly contamination monitoring is dated and covers all areas approved on your permit. Check contamination monitoring records to verify that wipe testing has been completed within seven (7) days of RAM use. Indicate whether any wipe testing was missed (i.e., later than seven (7) after RAM use) since the last inspection. Indicate whether any wipe testing results were above any action level since the last inspection. Ask personnel if they know what the contamination action limits are. **(Immediate)**
- a. Ensure that workers in the lab are aware of the RAM contamination action limits and when reporting is required. **(1 month)**
48. Confirm that the physical RAM inventory matches that of the EHS Assistant electronic inventory. Print and sign an inventory verification report and submit with the inspection. Confirm that paper use/disposal records match those entered into EHS Assistant. Check to ensure that the dose rate outside of storage areas/rooms is below 2.5 uSv/hr (you may need to borrow the RSO's calibrated survey meter if you do not have an annually calibrated meter in the lab). **(Immediate)**
49. Confirm that RSO-approved and signed disposal forms are available for all RAM disposed since the last inspection. If a lab sink has been approved for liquid RAM disposal, check to see that a RAM ticker is visible on the drain. **(Immediate)**

50. Verify that all containers with more than 1 exemption quantity (EQ) of RAM are adequately labelled (i.e., with the trefoil, isotope name, activity, date of measurement and form). **(3 months)**
51. Confirm that no RAM has been used on humans since the last inspection. **(Immediate)**
52. If radiation dosimeters have been issued for the workers in the lab, confirm that they are wearing them. **(Immediate)**
53. Verify that a current nuclear substance and radiation device (NSRD) license is posted in the building. Indicate the location where it is posted. **(3 months)**
54. Are required signs posted in the lab? Verify that a CNSC spill response, CNSC package receipt, and CNSC containment (for basic and intermediate labs) is posted prominently. **(3 months)**
55. Verify that packages containing RAM are received according to the package receipt RSOP06 and that documentation is available for all packages received. **(Immediate)**

Any non-compliances identified on the checklist should be itemized in the “corrective action listing.” The laboratory supervisor is responsible for completing the identified corrective actions within the time frame identified for each item on this form. Once the inspection checklist is completed, sign/date the form and submit to EHS via email at labsafety@mun.ca