Level I Inspection Guidance Document

2020

LEVEL I Required Weekly Checklist

Note: Items listed in the Level I Required Weekly Checklist are to be inspected weekly. For Satellite Accumulation Areas, it is a regulatory requirement that these areas be inspected weekly. The other required items on the weekly inspection checklist are basic items to ensure general lab safety is checked and fixed quickly. If a problem is found, talk to the lab member involved and ask them to correct the problem. For repeat or serious problems, notify the PI or both the PI and EHS Coordinator. As the EHS Rep, you are representing the PI, and they need to be aware of repeat problems because they are ultimately responsible for safety and regulatory compliance in the lab.

Satellite Accumulation Areas (SAAs) (Column 1 on Checklist):

1. **All hazardous waste stored in SAA at or near point of generation.**
   Guidance: Satellite accumulation areas must be located near the point of waste generation and under control of the person(s) generating the waste. If you have to go through a hallway or other public access area to get to the hazardous waste accumulation area it cannot be considered a satellite accumulation area.
   Reference: *310CMR 30.340*

2. **Green SAA stickers present at all SAAs.**
   Guidance: MIT requires that the green Hazardous Waste Satellite Accumulation Area sticker be used at each SAA. It is bright green and approximately 4” by 6” in size, and should be applied to the secondary containment bin or in the immediate area where the waste containers are kept. Other signs or stickers are not acceptable. EPA requires that areas be posted to designate the area, but does not specify the exact signage. MIT has chosen to standardize the signs wherever possible by use of the green sticker. (Note: green and white barber pole tape is used for Main Accumulation or <90-day areas only.)
   Reference: *310 CMR 30.341*

3. **Only containers *of waste* in SAAs.**
   Guidance: All containers in a marked SAA must be labeled as waste. Only labeled containers of hazardous chemical waste are to be stored in an SAA. Items such as empty chemical bottles and virgin materials are not allowed in an SAA.
   Reference: *310 CMR 30.341*

4. **Waste containers:**
   a. **Compatible with contents.**
      Guidance: Containers must be compatible with the hazardous waste stored in them, e.g. hydrofluoric acid not stored in a glass container, corrosives not stored

in metal containers. Container materials must be compatible with the hazardous waste stored so as to avoid unwanted reactions, or deterioration of container and loss of contents.
Reference: *310CMR10.340 and 30.253.*

b. **In good condition.**
Guidance: Waste containers should be of seamless construction and not cracked or damaged with lids that are intact and not cracked or damaged.
Reference: *310CMR10.340 and 30.253*.

c. **Closed.**
Guidance: Waste containers stored within the SAA must be firmly closed except when someone is adding waste to the container. Waste containers with lidded funnels are allowed, provided the funnel lid is closed when waste is not being added. HPLC waste containers may have "quick- connects" or fitted holes drilled in the cap to allow for tubing to be placed securely in the waste container. Vented caps are strongly advised for certain waste streams that build pressure under standard temperature & pressure. EHS can provide such vented caps and quick connects.
Reference: *310 CMR 30.685*

d. **Original label defaced.**
Guidance: Original labels on reused containers must be defaced to clearly communicate that the bottle is for waste and is not product for use. This can be accomplished by crossing out the original label information with permanent marker or tape.
Reference: *310 CMR 30.342*

5. **Only one active waste container per waste stream per SAA.**
Guidance: Hazardous waste regulations permit only one active container of hazardous waste per waste stream be stored at Satellite Accumulation Area (SAA). A maximum of 55 gallons of hazardous waste or 1 qt of acutely hazardous waste is permitted to be stored under these regulations. Once a container is filled and dated, with a request placed for pickup, a new container of the same waste stream may be started within that SAA.
Reference: *310 CMR 30.340*

6. **Red tags:**
   a. **Present on all waste containers.**
   Guidance: Each container in an SAA must have a red tag on it, as this is the method used to properly label waste containers at MIT.

   b. **Legible.**

Guidance: Chemical constituents must be clearly spelled out, in English, on the red tag.

c. **Chemical names spelled out (no formulas, trade names, or abbreviations).**
Guidance: Those managing the waste must be able to determine what is in them so they can manage it in accordance with regulatory requirements. Abbreviations often can stand for more than one thing. Trade names provide no information about contents, so chemical contents must be listed.

d. **Hazards checked.**
Guidance: Associated hazard(s) of the waste stream must be indicated on the red tag. Refer to the safety data sheet(s) and label(s) of associated chemicals within the waste container to determine the appropriate hazard or hazards to check.

e. **Generator name and PI name included.**
Guidance: Both generator name and PI name must be included on the red tag. When more than one lab member is using the same waste container, the name of the person who started the waste container should be on the label.

f. **Dated containers stored not more than 3 days.**
Guidance: Once a container is dated, it must be removed within three days of the date. Depending on the lab's location, the researcher should either submit a chemical hazardous waste pick up request or take the waste to the MAA as soon as the container is dated.

Reference: *Labeling requirements for waste – 310 CMR 30.340, 30.341 and 30.682*

7. **SAAs are neat, spills cleaned up, and all containers fit easily into SAA.**
Guidance: Good housekeeping practices within an SAA are important to ensure all storage requirements are met and potential releases or spills are contained.
Reference: *310 CMR 30.342*

8. **Secondary containment in good condition.**
Guidance: EHS provides secondary containment for all hazardous waste storage areas. Containers should be free of cracks or other damage. Incompatible wastes should be stored in different secondary containers.
Reference: *310 CMR 30.342 and 30.683*

9. **Incompatibles stored in separate secondary containers.**

Guidance: Chemical compatibility is important for waste collection both within the waste container and within the secondary containment bin to reduce the potential for an unwanted reaction.
Reference: *310 CMR 30.560 and 30.561*

General Lab, Biosafety and Radiation Area (Column 2 on Checklist):

1. **Emergency showers/eyewashes, fire extinguishers, spill kits, and other emergency equipment accessible.**
   Guidance: Nothing should be blocking access to showers, eyewashes, fire extinguishers, spill kits, etc. Nothing should be placed on the floor under an emergency shower. The showers are checked twice per year by Facilities. They will report to EHS that they were unable to conduct the test if the area underneath is blocked. Facilities also annually checks fire extinguishers.
   Reference: *NFPA 10; 29 CFR 1910.157*

2. **Emergency eye wash stations in labs flushed weekly by lab. Flush time of at least on minute.**
   Guidance: If an eyewash is connected to running water, a person in the lab should be assigned to run water through it once a week for one minute. This will flush out bacteria that may grow in stagnant water. This is based on the ANSI standard.
   Note: If you have a stand-alone eyewash that is not plumbed to a drain, contact EHS for information on how to flush it. Submit a work order for repair if the water spray is unbalanced, blocked, or the water becomes hot. For eyewash solutions in bottles or portable eyewash stations, lab personnel should replace the solutions before the expiration date.
   Reference: *29 CFR 1910.151; ANSI Z358.1*

3. **Aisles, exit doors and electrical panels are not obstructed by boxes, furniture, equipment, etc.**
   Guidance: Aisle-ways in work areas must be maintained a minimum of 36 inches. Main corridors must be maintained a minimum of 44 inches. When an emergency occurs, taking time to clear equipment out of the way in order to access exit doors, electrical panels, etc. can mean a critical difference in the outcome for people trying to escape or mitigate a hazardous situation, so these things must be accessible for use at all times. Evacuation routes must be “free of all obstruction to full instant use.” Any items which must be stored in aisles should be positioned on only one side.
   Reference: *MA building code; NFP Life Safety Code 101*

4. **Benches, clear of <u>excessive</u> clutter/chemical bottles/combustible materials and evidence of spills.**

Guidance: Excessively cluttered work surfaces can lead to fire and elec5tricl hazards, chemical storage concerns, and a general sense of unease about the laboratory's condition. Work surfaces, including fume hoods, should be neat, orderly, and clean; waste containers of all types should be emptied on a regular basis. Lab benches should be free of chemic al residues, razor blades, and other sharps. Evidence of spills not properly cleaned up may include: liquid or solid residues, stains, discolored surfaces or puddles anywhere in space, including around benches, floors and/or equipment.

5. **Labs secured when unoccupied.**
   Guidance: All laboratories should remain locked when unattended due to both general security concerns as well as chemical, biological, and radiological material security. Specifically, all radiation laboratories will be locked when unattended for extended periods. See also question 9.
   Reference: *105 CMR 120.235*

6. **No evidence of eating or drinking in lab.**
   Guidance: Eating, drinking, and cosmetic application is extremely poor practice and is not allowed in laboratories at MIT, in part to prevent inadvertent ingestion of hazardous materials. Note that any large, contiguous, open lab space is all the "lab", even if chemical or biological or radiological work is only being done in a portion of the space.
   Reference: *MIT Radiation Protection Program Required Procedures for Radiation Protection. NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines).*

7. **Lab personnel wearing personal protective equipment (PPE) as required per lab or DLC PPE assessment.**
   Guidance: All labs should have established requirements for PPE to be used in the lab, either task by task or for all work in the lab. The basic protection is usually lab coat, gloves, and eye protection such as safety glasses. The rep should assess what people are doing and verify they are wearing appropriate PPE for the task or the lab.
   Reference: *OSHA 29CFR 1910 Subpart I Personal Protective Equipment, and 1910.132 General Requirements, MIT Radiation Protection Program Required Procedures for Radiation Protection, OSHA Lab Standard, NIH Guidelines.*

8. **Biological waste is in marked biological waste containers.**
   Guidance: Solid biological waste should be collected in labeled bench-top transfer containers, plastic-lined step cans, or biowaste boxes provided by EHS. Labels should identify the contents as biological waste and incorporate the universal biohazard symbol. No liquids should be placed in these waste streams. Biologically contaminated sharps should be disposed of in labeled sharps containers provided by

EHS. Biowaste boxes should not be overflowing. If found in this condition, a biological waste pick up should be requested immediately. If your lab autoclaves solid biological waste, please see the EHS web page for guidance.
Reference: *105 CMR 480, 29 CFR 1910.1030*

9. **Radioactive materials properly secured.**
   Guidance: Stock radioactive materials should be in a locked refrigerator, locked freezer, locked box or cabinet.
   Reference: *MIT Radiation Protection Program Required Procedures for Radiation Protection*

Reviewed Periodically (Side 2 of Level I Checklist)

Note: Items listed in the Level I Periodic Checklist are to be checked periodically. Generally, a lab will be well prepared for inspections if weekly and periodic Level I inspections are done. If a problem is found, talk to the lab member involved and ask them to correct the problem. For repeat or serious problems, notify the PI or both PI and EHS Coordinator.

Laboratory Fume Hoods:

1. **Bottom back slot of fume hood at least 50% unobstructed.**
   Guidance: The back bottom slot of the fume hood must not be >50% obstructed within 6 inches of the slot. Obstruction of airflow can occur, creating turbulence and affecting containment. Obstructing equipment or materials should either be moved or mounted on small blocks or equipment grids, which will allow the air to flow under. All work with chemicals should be conducted 6 inches back from the front of the fume hood.
   Reference: *29 CFR 1910.1450*

2. **Hood free of trash and excessive clutter/chemical bottles/equipment not associated with current experiments.**
   Guidance: These hoods are used for performing work with toxic and/or hazardous materials. When extraneous materials are in a hood, it may be difficult to properly set up the work to be done, and the extraneous materials/equipment could become involved in an unplanned event or could prevent adequate containment of toxic vapors, etc.

3. **No evidence of chemical spills.**
   Guidance: All spills in fume hoods should be cleaned up when they occur. Residual contaminants on the surface can make the work area less safe and present an unknown hazard to users of the hood.

4. **Fume hood sash closed as much as possible for activity and closed completely when not in use.**
   Guidance: The fume hood sash, when closed, can offer some protection from unexpected reactions and chemical splash, and can contain problems such as fires, to the hood. Also, in many locations, closing the sash reduces the amount of energy used for heating and cooling by reducing the volume of conditioned replacement air needed for the space.

Hazardous Materials Storage:

General guidance: Proper management and storage of chemicals greatly enhances the safety of a lab space by assuring that these potentially hazardous materials are assessed periodically, kept in compatible groupings, in containers that will not spill or leak, with contents clearly identified for users. They are stored safely for access, and are not stacked or arranged in a way that makes them difficult to reach or handle, or that makes them vulnerable to dropping or being knocked over. They are stored in a way that is appropriate in proper cabinets or on shelves, or in secondary containment when on the floor to protect them from damage. They are not allowed to age indefinitely in some dark corner of a shelf, but are disposed or recycled when no longer needed in the lab.

1. **Chemical containers in good condition, lids tight and labels visible that clearly identify contents.**

2. **Chemicals stored neatly and not stacked, crowded together or extending beyond edge of shelf.**

3. **Hazardous liquids not stored above eye level.**

4. **Liquid chemicals segregated from solid chemicals.**
   Guidance: Many hazardous solid chemicals are fairly safe in storage as long as they are kept dry. Storing them separate from liquids, and above liquids when on a shelves, will help them stay dry.

5. **Liquid chemicals, if stored on the floor, are in secondary containers.**

6. **Incompatible materials not stored together.**
   Guidance: There are recommended groupings for storage of chemicals based on hazard. This information can be found on the EHS website at: https://ehs.mit.edu/chemical-safety-program/chemicals/

7. **Compressed gas cylinders secured approximately 2/3 of the way up from bottom with strap or chain, or placed in appropriate cylinder stands/holders.**
   Guidance: All gas cylinders must be secured above their center of gravity (~2/3 up the cylinder). If a cylinder falls, it may shear off its valve and the escaping high-pressure gas has been known to propel the cylinder like a rocket that can smash through masonry walls. Use a chain or belt to secure cylinder to a bench or wall. Whenever the cylinder does not have a regulator on it, the cap must be kept on to protect the valve. Do not drop or strike cylinders against each other. Segregate flammable gas cylinders from oxygen cylinders when stored together. Usually highly corrosive, toxic and pyrophoric gases are in gas cabinets. Segregate empty and full cylinders and label empty cylinders.
   Reference: *29 CFR 1910.101*

Safety:

1. **Electrical and/or data cords are not causing a potential trip hazard.**
   Guidance: Cords in the work area should not be running across the floor in places where people may trip on them. If they must be in a path of travel they should be covered with a cord or cable cover to prevent the tripping hazard and protect the cord from damage.