QUEST SELF-ASSESSMENT CHECKLIST For LABS

Area assessed: ___________________

People who did the assessment: ____________________________

GENERAL SAFETY

For systems with safety-related interlocks, are interlock test procedures readily available? Are interlock systems being tested as required? (Test records should be readily available.)

_____________________________________________________________________________

Are there approved work authorizations (WPC Activities, RWAs) for all experiments? Are lists of authorized personnel and work authorization levels up-to-date? Does your group have documented controls in a WPC Activity for any work that should not be performed alone?

_____________________________________________________________________________

Do all non-routine operations, (such as short-term experiments, clean-up/construction projects, or vendor equipment servicing) with significant hazards have a documented hazard analysis and required work authorizations (such as WPC Activity, Construction Safety permits, SJHA, Hot Work permits)?

_____________________________________________________________________________

Do all entrances to labs have signs next to doors describing hazards, PPE requirements, and contact people? Are there any outdated or non-standard signs? Contact the Area Safety Lead to update door signs. Check bulletin boards and remove any outdated materials.

_____________________________________________________________________________

Is appropriate PPE (eyewear, lab coats, gloves, etc.) conveniently available, properly stored, and in good condition in areas where it is required? Are closed-toed shoes worn in all lab areas and safety shoes worn where heavy or sharp objects could cause injury?

_____________________________________________________________________________

Are food and beverages kept out of areas where chemicals or radioactive materials are stored or used? Is there a conveniently located non-technical area where food and beverages are allowed to be consumed?

_____________________________________________________________________________

Are sharp cutting tools (razor blades, scalpels, knives, etc.) stored with the blade covered? Are there red sharps disposal containers available near areas where sharps are used? (Note any full containers that need to be picked up.)
LAB ERGONOMICS

Check the chairs in your area. Are there any other damaged or defective chairs or stools that need replacement?

Are there any physically difficult or repetitive tasks in your shop that might benefit from an ergonomist's evaluation (e.g., heavy lifting, uncomfortable positions, bending or stretching to reach things, repetitive or forceful twisting, etc.)?

HEARING PROTECTION

Are there noises in your work area that make it difficult to understand conversations, or cause discomfort? If yes, has an EHS evaluation been performed, and adequate controls (PPE or work changes) been provided?

EMERGENCY PREPAREDNESS

Have up-to-date emergency evacuation routes and assembly areas been posted?

Are there any outdated or non-standard signs that need to be removed? Check bulletin boards and remove any outdated materials.

Are copies of the Emergency Guide (red/orange/yellow flip chart) posted? Tip: The current version of the Guide has a blue “site map” tab at the bottom -- contact Pat Thomas ext. 6098 to request copies.

Talk to your Building Emergency Team Leader(s):

-- Are there Building Emergency Team members assigned to each area that may need to be evacuated?

-- Have Building Emergency Team members completed required training?

-- Do all Building Emergency Team members know how to use the emergency radio?

-- Is the information in the BET WPC Activity up-to-date?

-- Is there a current Building Emergency Plan available?

-- Do all team members know where the nearest trauma kit, AED, and disaster emergency equipment are located?
Are aisles, walkways, stairways, and exit doors unobstructed? Is the area free of tripping hazards?

Check the area outside your building. Are there any burned-out lights, tripping hazards, worn or damaged steps, or other conditions that make walking hazardous? Are there any areas where traffic/bicycle/pedestrian safety could be improved?

Have the following items been seismically secured?

- Bookcases, file cabinets, storage cabinets, electronics racks, and other furnishings that are more than 4 feet high, regardless of weight?
- All equipment and furnishings that are mounted at 4 feet or less above a floor level and weigh more than 400 pounds?
- All equipment that is mounted more than 4 feet above a floor level to a vertical surface and weigh more than 20 pounds?
- All equipment that is suspended below a floor and weigh more than 20 pounds?
- Bookcases and other furnishings regardless of height or weight where they might block doors or exit passages?
- Equipment that is mounted to a table top and weigh more than 100 pounds?
- Chocks or wheel locks in place for equipment on wheels?
- 160-liter Dewars and compressed gas cylinders?
- Any equipment, storage cabinet, or container that contains hazardous materials?
- Heavy items on shelves where they might fall down on personnel below?

Is fire extinguisher access unobstructed? Are the types of fire extinguishers appropriate to the type of fire you might have in the areas (A= ordinary combustibles, B=flammable liquids, C=electrical, D=metals)?

Are fire sprinkler lines free of attached cords, lines, equipment, decorations or other materials?

Have eyewashes and safety showers been inspected within the last 3 months? Are they in good condition? Is access unobstructed? Are eyewashes located so that someone with chemicals in their eyes would be able to reach the eyewash within 10 seconds?

Are there adequate numbers and appropriate types of spill kits (e.g., flammable, acid, and base) available in work areas where they may be needed?
ELECTRICAL SAFETY

Is access to electrical panels, including breaker boxes and disconnects (600 V and less), unobstructed with 42” of working space?

_____________________________________________________________________________

Does each electrical panel have a schedule posted nearby indicating the purpose of all breakers and disconnects? Are all breakers and disconnects numbered or otherwise identified?

_____________________________________________________________________________

Are electrical panels and breaker boxes in good condition (intact, screws in place, door latches work, no materials stored on top)?

_____________________________________________________________________________

Do electrical panels and breaker boxes have an arc flash label providing shock and arc flash information (PPE level, voltage, incident energy)?

Acceptable Arc Flash Label examples:

![Arc Flash Label Examples](image)

_____________________________________________________________________________

Are all wall-mounted plug strips, receptacles, and outlets in good condition?

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Are labeled ground fault circuit interrupters (GFCIs) located on electrical outlets near water sources and other areas where they may get wet, and attached to any outdoor extension cords? (Wet or damp areas include areas within 6 feet of a sink, shower, emergency eyewash station or other water source, but do not include fire sprinklers.)

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If using heat tapes, are they controlled (by a Variac or equivalent) and are they using a ground-fault circuit interrupter (GFCI) protected source?

_____________________________________________________________________________

March 2017
Are **extension cords** in good condition:

-- marked as approved by “UL” or “ETL”?

-- 3 intact prongs on plug (indicating there is a ground wire) and plug attached to cord with no exposed wires?

-- cord jackets in good condition, with no frayed insulation, exposed wiring, splices or other signs of tampering, kinks, or taped-over damaged areas?

Have all **extension cords** been in use no longer than the duration of the experiment or developmental use?  [Where equipment is intended to stay in a specific location, and a receptacle is not located close enough to plug in the equipment, consider submitting a work request to have a receptacle installed where needed.]

Are unused extension cords rolled up and stored properly?

Are **extension cords** used properly:

-- appropriate for the load?

-- two extension cords of the same gauge may be used together (but not more than 2, unless they are equipped with locking connectors).

-- covered with a bridge (not under carpet or rug) in walkways?

-- not draped over furniture or fire sprinkler lines?

-- not fastened with staples or stretched in a way that could cause damage?

-- protected from damage from sharp corners, projections, and pinch points?

Are **relocatable power taps** (also known as plug or power strips or surge protectors) in good condition:

-- marked as approved by “UL” or “ETL”?

-- no cracks in plastic or metal case, no damage to cord or plug, no deformed or dark spots indicating overheating?
Are relocatable power taps (also known as plug or power strips or surge protectors) used properly:

-- not daisy chained (should be plugged directly into wall, not attached to extension cords or other power strips);

-- not permanently attached so that tools are required for removal (may be mounted with slots or keyholes if provided by manufacturer);

-- not connected to equipment over 600 Watts/5 amps, such as heaters, cooking appliances, or fans (unless specifically rated for this type of service)?

-- only used in dry, indoor locations?

_____________________________________________________________________________

Are cable trays properly grounded and used correctly (not overfilled, electrical and water lines separated)?

_____________________________________________________________________________

Are all unused openings (including conduit knockouts) in electrical enclosures and fittings closed with appropriate covers, plugs, or plates?

_____________________________________________________________________________

Are electrical conduits free of attached cord, lines, equipment, decorations or other materials? (Tip: Use unistrut instead of conduits to support materials.)

_____________________________________________________________________________

Is electrical equipment on metal carts or tables bonded, and grounding provided for metal carts used for electrical equipment?

_____________________________________________________________________________

Is someone assigned and trained to survey non-NRTL electrical equipment in your area? Is there any non-NRTL equipment that has a potential of 50 Volts or greater anywhere in the equipment that has not been inspected and approved by the Electrical Equipment Inspection Program?

_____________________________________________________________________________

Is there any electrical equipment labeled “Failed” or “Conditionally Accepted” that is in use? Have actions been taken to ensure this equipment is either repaired or taken out of service?

_____________________________________________________________________________

Have all grounding hooks and control rods been inspected, resistance tested, approved for use, and entered into the Quickbase Glove and Electrical Tracker database?

_____________________________________________________________________________

Does everyone in the lab know what “electrical work” means?

_____________________________________________________________________________

March 2017
Can everyone find the Electrical Safety website, Electrical Safety Manual, and the ESH Manual (Pub-3000)?

Does everyone understand what types of work require a QEW, and how to obtain QEW support?

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**EQUIPMENT GUARDING & SAFETY**

Does any laboratory equipment have reasonably accessible points of operation, pinch and nip points, rotating parts, and flying chip or spark hazards that may expose an employee to injury? (Examples include presses, heat sealers, polishers, cutting equipment, and rotating transmission components such as belt drives, gears, and rotating shafts over 10 rpm.) Have all these hazards been guarded to prevent injuries:

- Points of operation (cutting, shaping, boring, bending, punching, etc.)?

- Power transmission apparatuses (pulleys, belts, flywheels, couplings, cams, spindles, chains, cranks, gears, etc.)?

- Nip and pinch points?

- Hot surfaces?

- Entanglement hazards?

- Chips/flying materials, splashes, or sparks?

Do the guards themselves pose a safety hazard?

**Tip:** See ES&H Manual Chapter 25, Appendix C for examples or contact Herb Toor for assistance.

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If there are manufacturer’s maintenance and operating procedures, are they being followed?

For laboratory-made equipment, have maintenance and operating procedures been developed?
REFRIGERATORS AND FREEZERS

Is each refrigerator, freezer, or cooler prominently marked to indicate whether it meets the requirements for safe storage of flammable liquids? Are there any flammable liquids stored in non-approved units?

Are refrigerators and freezers in labs labeled “Caution – Do Not Store Food or Beverages in this Refrigerator”? (NOTE: If you have not received this new label, contact Julie Zhu.) Are there any food or beverages in the chemical storage units?

Are refrigerators and freezers plugged directly into a wall outlet (not an extension cord or power strip)? Is there enough space near the outlet for a person to unplug/plug the unit safely?

CHEMICAL SAFETY

Are floors and work surfaces free of chemical residues?

Are chemical containers and gas cylinders in good condition (not leaking, rusted, dented, etc.)?

Are the chemicals needed (current or near-future planned use, not degraded or expired)?

Are chemical containers (including secondary containers such as squeeze bottles, beakers, or flasks) and gas cylinders clearly labeled with name of chemical contents and hazard?

Have chemicals been entered into the Chemical Management System? (Check for a barcode on the container or on a Multi-Container Inventory Sheet posted nearby.)

Have chemicals >1 gallon inside equipment been inventoried (bar code on equipment or on Multi-Container inventory sheet)?

Has the maximum quantity of each gas or cryogen that may be used or stored in the room been entered into the Chemical Management System?
Do workers know how to find and use Safety Data Sheets? (*Pick a chemical container or gas cylinder. Ask a worker in the area to show you the SDS and identify the hazards.*)

- Does the worker know what “GHS” and the GHS symbols/pictograms mean?
- Does the worker know what an SDS is?
- Can they quickly produce a current SDS (either hard copy or from the website)?
- Can they find the hazard information?

Are all gas cylinders and chemical containers (including original containers, secondary containers, and samples) clearly labeled with the name of the chemical contents and hazard?

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Are Primary containers labeled with manufacturer’s original label in good condition? (NOTE: For kits containing multiple containers, such as epoxy kits, the outer packaging of a kit is considered to be the primary container.)

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Are Secondary containers (such as jars, cans, squeeze bottles, and other containers to which hazardous materials are transferred from a primary container) legibly labeled with:

- the product identifier (i.e., chemical or product name) which is the same as on the primary container or SDS; and
- the primary hazard?

(*Tip: Contact Julie Zhu for pre-printed labels.*)

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Are Process containers, such as plating baths and degreasing tanks, legibly labeled with the chemical identity of the material/mixture and hazard warning?

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Are chemicals stored properly? *Examples:*

- Acids separated from bases?
- Corrosives (acids and bases) separated from flammables and toxics?
- Flammable liquids separated from oxidizing liquids?
- Acetic acid stored with flammables?
- Flammable liquids >10 gal. stored in flammables cabinet?
- Water reactive solids stored separately from flammable liquids?
- Flammables protected from heat and sources of ignition?
- Chemicals stored in approved containers, tightly closed and covered when not in use?
- Containment pans under liquids? Separate containment pans for liquids with different hazards?
- Chemicals stored away from stairs and exits?
- Overhead storage shelves equipped with shelf lips or latched doors?
- Hazardous liquids stored away from sinks and drains?

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March 2017
Are gases stored properly? Examples:
- Gas cylinders protected from heat and sources of ignition?
- Gases stored away from stairs and exits?
- Flammable gases stored in designated flammable gas storage areas (not in flammable liquid cabinets or with non-flammable gases)?
- Gas cylinders secured by metal bracket, top and bottom chains, or on a cart secured to prevent rolling or tipping?
- When gas cylinders are on carts, are the gases intended for use that day? (If not, authorized personnel should remove regulators from cylinders and return cylinders to storage racks)

Are flammable liquid storage cabinets:
- Clearly marked?
- Approved for flammable liquid storage?
- In good condition, with doors that close automatically when released?
- Free from accumulated chemical residue?

Are ventilation systems uncluttered (air flow not blocked)? Is there a sticker indicating ventilation systems have been inspected and tested within the last year?

Have potential lead hazards been identified and controlled (lead bricks and shielding covered, lead not needed for shielding removed from work areas, no old paint peeling or chipping)?

For cryogens, has the Oxygen Deficiency Hazard been evaluated?

HAZARDOUS WASTE and SATELLITE ACCUMULATION AREAS

Is the Satellite Accumulation Area (SAA) near the point the where the waste is generated? Can access to the SAA be controlled by the responsible person (locked up or within visual contact from work area?)?

Has an SAA sign been posted at each hazardous waste accumulation area? Has the sign been filled out completely and accurately with the name of the responsible person, building/room, telephone number, and type of waste?

Is there a Hazardous Waste label attached to each container? Is the label filled out with the name and phone number of the generator, building/room location, type of waste, hazards, waste form (solid/liquid), and accumulation start date?

Are there any wastes that have been in the SAA for more than 9 months?

March 2017
Are there any wastes (such as waste oil) in volumes > 55 gallons?
____________________________________________________________________________

Are all waste containers in good condition (not leaking, bulging, etc.)?
____________________________________________________________________________

**SUSPECT/COUNTERFEIT PARTS**

Do key personnel know how to identify and report suspect parts? (How long since they received training? *Tip: BLI2007 Suspect Counterfeit Parts Training, Part 1, is now available on line at: [http://www2.lbl.gov/ehs/training/webcourses/BLI2007/](http://www2.lbl.gov/ehs/training/webcourses/BLI2007/)*)

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Are periodic inspections of facilities, equipment, spaces and parts stocks being conducted to identify suspect parts?
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Are high strength fasteners (bolts, nuts, screws, and washers) certified and controlled since purchase? Are certifications for installed high-strength fasteners available for review?
____________________________________________________________________________

Are the following types of items assessed for possible suspect/counterfeit parts when received through procurement or obtained from other groups:

- High-strength fasteners (bolts, nuts, screws, washers);
- Electrical/electronic components (circuit breakers, current and potential transformers, fuses, resistors, switch gear, overload and protective relays, motor control centers, heaters, motor generator sets, DC power supplies, AC inverters, transmitters, computer components, semiconductors);
- Piping components (fittings, flanges, valves and valve replacement products, couplings, plugs, spacers, nozzles, pipe supports);
- Pre-formed metal structures;
- Elastomers (O-rings, seals);
- Spare/replacement kits from suppliers other than the original equipment manufacturer;
- Weld filler material;
- Diesel generator speed governors; and
- Pumps?
LAB WORK BEHAVIOR OBSERVATIONS and DISCUSSION

(NOTE: Any observations of unsafe behaviors should be noted without using names of people observed – just note the location.)

Lifting: tests weight before lifting; gets help with large/awkward items; avoids awkward body positioning; bends knees when lifting; avoids bending over, twisting, overextending; checks path for hazards before carrying. Note any potential problems you observe for follow-up by ergonomist:

_____________________________________________________________________________

Repetitive Motion: Plans work and gets help before taking on extended repetitive tasks. Takes breaks as needed to prevent overuse injuries. Re-evaluates when workload or schedule changes. Note any potential problems you observe for follow-up by ergonomist:

_____________________________________________________________________________

PPE: wears protective equipment required in the area and appropriate to the job. Consider eye/face protection (goggles, face shield, safety glasses), gloves, hearing protection, foot protection, respiratory protection, clothing (lab coat, coveralls, apron).

_____________________________________________________________________________

Procedures: plans work, identifies hazards, ensures controls are effective, gets permits/work authorizations, checks condition of equipment before using, follows written procedures, obeys signs, performs LOTO when needed, leaves equipment and work area in clean and safe condition.

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