

# AFRD QUEST PROGRAM GUIDE

Accelerator and Fusion Research Division  
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**Chart on page 9 updated 8/1/2008**

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## WHAT IS QUEST?

**QUEST** is an integrated way to examine **Q**uality Assurance/Improvement and **E**nvironment, **S**afety, and **H**ealth through **S**elf-Assessment and **T**eamwork. Its basic premise is that teams composed of employees actually performing the work of the Programs are in the best position to evaluate the quality and safety of their workplaces.

The main objective of QUEST is the identification and mitigation of any condition or process that jeopardizes the safety and health of employees, protection of the environment, or the quality of AFRD research or operations. The QUEST process involves all long-term AFRD personnel to raise awareness of ES&H and quality issues and develop the habit of identifying, reporting, and resolving potential problems before accidents or occurrences result. QUEST teams are also encouraged to identify opportunities for improvement, examine each of these opportunities, and implement those actions that they believe will lead to the improvement desired.

AFRD management reviews and updates the QUEST program annually. Following is a brief history of QUEST:

- QUEST was developed in 1994. It was revised as QUEST-II in 1996.
- The April 1998 update aligned the QUEST program with the Lab Integrated Safety Management System by incorporating QUEST into the AFRD ES&H Management Plan. The October 1998 update provided greater flexibility to teams in deciding how to implement QUEST.
- The January 2000 update established an annual QUEST review as the required minimum level of QUEST participation and revised the Quality Assurance aspects of self-assessment.
- The 2001, 2002, and 2003 update revised the QUEST Fundamentals checklist and the Quality Assurance section.
- The 2004 update provided special checklists in preparation for the January 2004 OSHA inspection.
- The 2005 update incorporated items from the updated LCATS checklists and a new Waste Minimization and Management checklists.
- The 2006 update integrated the QUEST program with supervisor safety walkthroughs mandated by the Laboratory Director.
- The 2007 update returned to QUEST teams organized by location. Behavior observations were added to checklists. The Quality Assurance section incorporated requirements of the new LBNL Quality Assurance Plan. Quality and environmental protection are incorporated

into Supervisor Safety Plans. The Guide was reorganized for clarity and to reduce redundancy.

- The **2008 update** combines the QUEST Waste Minimization and Management checklist and the AFRD Environmental Review and Self-Assessment Checklist used in Supervisor's walkthroughs last year into a 2-part **QUEST Environmental Management checklist**. It also adds a **Lockout/Tagout Inspection** process and checklist, required by PUB-3000, Sections 18.15 and 18.19.4.

## **WHAT ARE QUEST TEAMS?**

All AFRD personnel (including Division employees, matrixed employees, visitors, temporary employees, students, and participating guests) are assigned to at least one QUEST self-assessment team, with the exception of short-term personnel (persons whose participation in AFRD work activities at LBNL are anticipated to occur over a period of less than 90 days/year). Persons whose participation in work activities at AFRD are anticipated to occur over a period of less than 90 days may be included in a QUEST team as determined by the Program Head. **For 2008, the teams will be organized by work groups sharing work locations.**

AFRD ALS Accelerator Physics Program personnel are assigned to ALS Division Safety Circles, which function as the ALS QUEST teams.

## **WHAT DO QUEST TEAMS DO?**

Each team member should have an active role to play in some facet of QUEST activities each year, such as updating the team roster, doing a self-assessment inspection, discussing concerns or taking minutes at meetings, entering findings into the Corrective Action Tracking System, or resolving corrective actions.

### **Workplace Assessments**

Each team will have charge of self-assessment for the workspace of its members. Program ES&H Coordinators must coordinate team assignments to ensure the annual inspections cover all the Program space at LBNL. ALS Accelerator Physics personnel will participate in ALS Division QUEST activities, as directed by the ALS ES&H Coordinator.

**Each QUEST team is required to perform an assessment of workplace safety hazards and environmental management practices at least once during the QUEST self-assessment period (February 2008, with the exception of ALS).** Use of the applicable ES&H Checklists is required. If teams see other safety concerns that are not on the checklists, they should be reported as well. Any observations of unsafe behaviors should be noted without using names of

people observed. Use of the Quality Assurance checklist is an optional activity for QUEST teams, at the discretion of the Program Head.

### **Lockout/Tagout Inspections**

PUB-3000, Section 18.15 requires each division to conduct an annual inspection and certification of its energy-control (LOTO) procedures. Each LOTO inspection must be performed a LOTO-Authorized employee (someone who has completed the EHS0256 Lockout/Tagout Verification course) other than the one utilizing the procedures being inspected. The inspection process will be as follows:

- QUEST teams will **identify their LOTO-Authorized employees and their operations having LOTO procedures.**
- The LOTO inspectors will **attend a training session** being arranged by the LBNL Electrical Safety Engineer (Keith Gershon) on how to do the inspections. At the training session, we will also **organize inspection assignments** so that each inspector evaluates procedures for areas where they do not work.
- The LOTO inspectors **perform the inspections** using the LOTO Inspection Checklist. The inspection includes a demonstration of the procedures. Following each inspection, the inspector will review each worker's responsibilities under the LOTO procedure with him or her. The inspector then **completes and signs the LOTO Inspection Forms, and sends them to the AFRD ES&H Administrator (Pat Thomas) by February 29<sup>th</sup>.**
- The original **LOTO Inspection Forms are reviewed and signed by the Division Safety Coordinator (Steve Lidia) and sent to the EH&S Electrical Safety Engineer (Keith Gershon).**
- A copy of the inspection forms is sent back to the Program Safety Coordinator of the areas inspected, for **discussion at QUEST team and/or Program safety meetings.**
- **Corrective actions will be entered into the CATS database** for tracking.

### **Team Meetings**

**Each QUEST team must meet at least once during the QUEST self-assessment period.** All team members are encouraged to attend. At the meeting, the team will discuss the workplace inspection and LOTO inspection findings and solicit additional reports of concerns from team members. **Part 2 of the Environmental Management Checklist requires team discussion** and the QUEST team meeting is the most convenient forum for completing this requirement. Team members are encouraged to report any other work-related environmental, health, safety, or quality assurance concerns.

### **Recordkeeping and Follow-up**

Each QUEST team will maintain a record of its activities including a list of members (**QUEST Team Roster**), minutes and attendance rosters for all meetings (**QUEST Meeting Report**), copies of inspection findings including actions taken or planned (**ES&H/QA Concerns Report**).

The team leader will provide copies of these documents to the Program ES&H Coordinator. Copies of all documents will be maintained in the Program office to provide validation for our annual Division self-assessment report.

**The QUEST Team members (if they know how) or Program ES&H Coordinator will enter unresolved ES&H action items into the Corrective Action Tracking System (CATS) database,** assigning responsibility for the action items to an appropriate person for follow-up. The Program ES&H Coordinator will discuss the unresolved concerns at the AFRD ES&H Operations Committee meeting.

### **Can QUEST Teams Do More?**

Program Heads may establish additional requirements for QUEST activities within their Program.

In addition to the required annual inspection, QUEST teams are encouraged to remain active throughout the year. Team meetings are one way of providing feedback to the team on the actions that have been taken as a result of the concerns team members have identified. QUEST team meetings are also an opportunity to pass along relevant information from the AFRD ES&H committees. Some QUEST teams find value in meeting periodically throughout the year. Appropriate meeting topics include any issue affecting safety, the environment, or quality assurance. Teams are encouraged to choose topics that are "local issues" and fit their needs.

Teams may choose to perform additional assessments of particular areas or aspects of their work. If deficiencies are uncovered, corrections should be made immediately when practical, or recorded in CATS for further action. Items requiring the assistance to correct, or for which additional guidance is needed should be promptly referred to the AFRD ES&H Administrator through the Program ES&H Coordinator.

## HOW IS QUEST RELATED TO OTHER AFRD ACTIVITIES?

### Supervisor Safety Plans

Section 3.1 of PUB-3111, LBNL's Operating and Quality Management Plan, requires LBNL managers at all levels to regularly assess the performance of their organizations and functions. **At AFRD, assessment and communication of quality, safety, and environmental protection are integrated in Supervisor Safety Plans. Each AFRD supervisor is expected to maintain a Supervisor Safety Plan approved by his/her Program Head.** This plan contains the supervisor's commitment to carrying out specific safety communication, inspection, and improvement activities appropriate to their work group. (Program Heads may require plans from other employees having safety leadership responsibility.)

At the end of each quarter of the Performance Year, the AFRD ES&H Administrator will ask each Program ES&H Coordinator to collect information regarding the activities their Supervisor Safety Plan holders have actually performed during the quarter. Program ES&H Coordinators should direct their Program Head's attention to plans that are not being fully implemented. Program Heads should discuss the difficulties in implementing the plans with the responsible people and determine whether efforts need to be increased or plans amended to reflect actual practices.

QUEST assessments and Supervisor Safety Plan walkthroughs are complimentary activities. QUEST raises safety awareness, involves everyone in the Division in improving safety, and encourages teamwork and communication. Supervisor Safety Plans reinforce ongoing Line Management Responsibility. **QUEST checklists may be used by supervisors throughout the year as guidance in performing their walkthroughs. A supervisor who participates in an assessment of his/her work areas with their QUEST team may receive credit for a Supervisor Safety Plan walkthrough for this activity.** An assessment of work areas by other personnel during QUEST without the supervisor's active participation cannot be substituted for the supervisor's commitment to perform a walkthrough.

ALS may designate different requirements for AFRD's ALS Accelerator Physics personnel.

## AFRD SUPERVISOR SAFETY PLAN

Prepared by: \_\_\_\_\_  
Supervisor name /date

Accepted by: \_\_\_\_\_  
Program Head name/date

**SELF-ASSESSMENT** *Describe how you personally assess the quality assurance, safety, and environmental protection of your group's workplace conditions and activities, including walkthroughs of spaces and observation of activities. [AFRD expectation: supervisor walkthrough at least quarterly]*

**COMMUNICATIONS** *Describe how you (1) communicate quality, safety, and environmental protection information to your group and (2) receive and address concerns from your group. [AFRD expectation: group meeting where safety (and aspects of quality and environmental protection as needed), are discussed at least weekly.]*

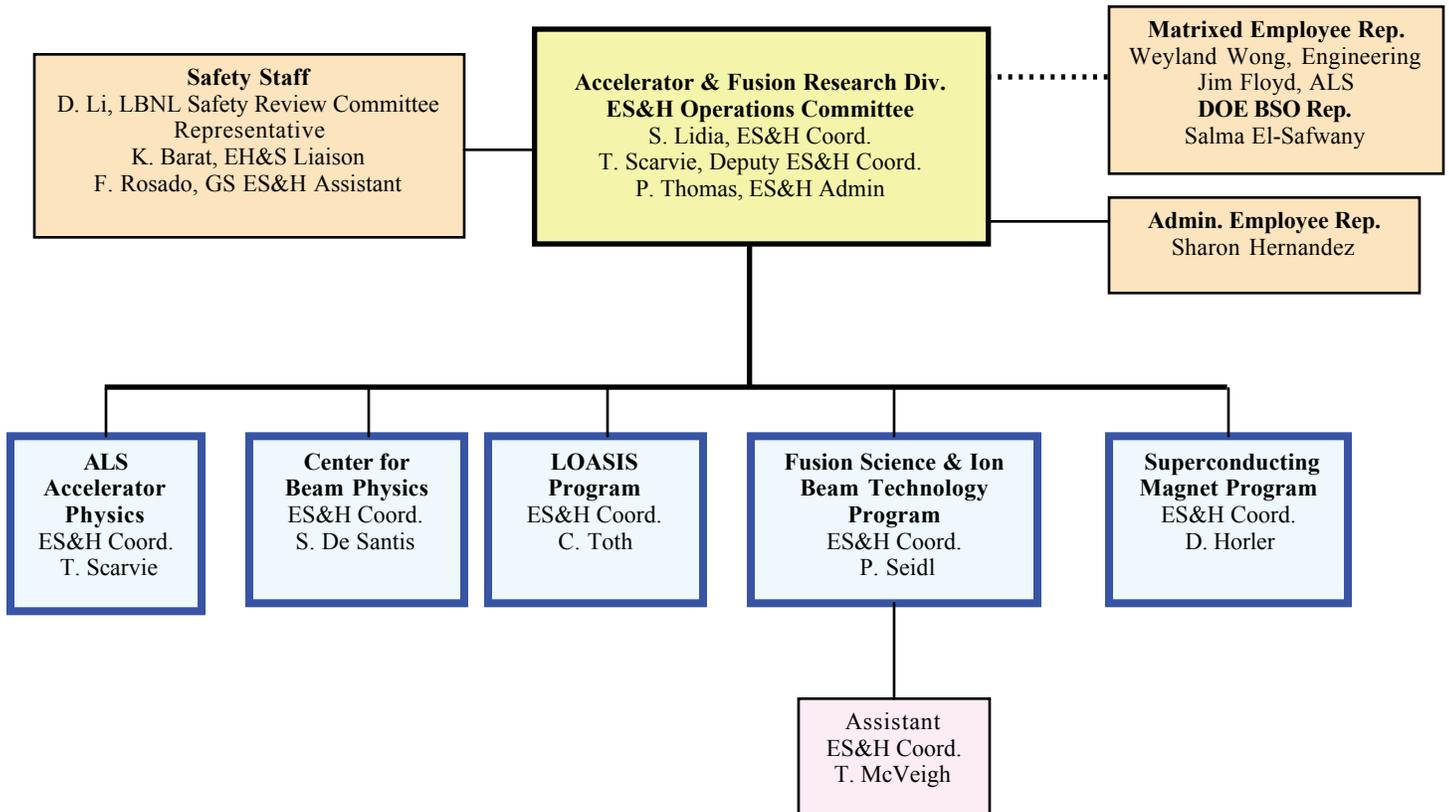
## Program ES&H Committees

Programs may have their own ES&H Committees, consisting of current QUEST team leaders, the Program ES&H Coordinator, and others designated by the Program Head. Program ES&H Committees meet at the discretion of the AFRD Program Head. ES&H Committee meetings may be held in conjunction with another Program meeting.

## AFRD ES&H Operations Committee

At the Division level, the AFRD ES&H Operations Committee coordinates most ES&H program implementation activities. The AFRD ES&H Operations Committee consists of the Program ES&H Coordinators, the AFRD ES&H Administrator, the AFRD ES&H Coordinator and Deputy ES&H Coordinator, and representatives for administrative and matrixed employees. This committee, working in conjunction with Program ES&H Committees and QUEST teams, is the primary conduit for ES&H information both to and from LBNL and AFRD management. The EH&S Division Liaison is also invited to the meetings of this committee. Meetings are held monthly, usually on the first Friday of the month. At the meeting, the committee members discuss ES&H concerns and lessons learned from them. The AFRD ES&H Coordinator, Deputy Coordinator, and/or Administrator pass on any information on lab-wide ES&H programs and problems that have arisen.

(This chart updated 8/1/2008)



## **Program Heads Meetings**

The AFRD Program Heads meetings are chaired by the AFRD Director and consist of the AFRD Program Heads and Project Leaders for major projects, and key business management personnel. This group usually meets about once a month. The AFRD ES&H Coordinator and/or AFRD ES&H Administrator communicate current safety information and concerns at each meeting. The Director and Program Heads make policy decisions about the division safety program and provide feedback and direction to the AFRD ES&H Operations Committee.

## **LBNL and Division Self-Assessment**

The Laboratory has implemented a self-assessment system that AFRD fully supports and in which the Division actively participates. This system includes the following assessments:

- Management Environment, Safety, and Health (MESH) reviews, conducted by the LBNL Safety Review Committee, review how well the management systems described in our AFRD Integrated Safety Management Plan are functioning.
- EH&S Division's Technical Assurance Program consists of subject matter experts' self-assessments the performance of their programs.
- Division Self-Assessments, performed annually by each Division, measure the implementation of the Division Integrated Safety Management Plans against performance criteria.
- Contract 31, Appendix B self-assessments utilize information from the ES&H self-assessments described above and assessments of business and operational functions to measure LBNL's performance against contract performance measures.

QUEST is an important part of this system. We assess the quality and safety of the locations where we work and correct many deficiencies. To avoid duplicated effort, the IFA and MESH teams can review our QUEST action items in the CATS database and then focus on more difficult to identify deficiencies and opportunities for management system improvements.

The annual Division Self-Assessment report is compiled (by the AFRD ES&H Administrator) by reviewing QUEST reports, findings from Supervisor Safety Walkthroughs, and other performance information such as accident reports, regulatory agency inspection reports, and findings of MESH assessments. QUEST findings help us identify ways of improving our ES&H systems. Our Division ES&H Self-Assessment Report is submitted to the Division Director and the Office of Contract Assurance. Findings and performance ratings of all the Division Self-Assessments are rolled up in an ES&H self-assessment report to LBNL management. Some of the self-assessment performance statistics are used in performance measure scores for LBNL's contract with the U.S. Department of Energy.

## QUEST TOOLS

**QUEST Team Roster ..... Page 12**

This form is used to list the members of your team. (While not a requirement, you may select a name for your team.) **The current team rosters must be maintained in the Program office.**

**Lockout / Tagout Inspection Form.....Page13**

This form is used by LOTO-trained personnel to document the findings of their independent inspections of LOTO procedures. It is used in conjunction with the Lockout/Tagout Inspection Checklist.

**AFRD QUEST Team ES&H/QA Concerns Report.....Page 14**

This form is used by QUEST team members to submit concerns to their Team Leader.

**QUEST Meeting Report.....Page 15**

This form is designed for recording team meetings.

**QUEST ES&H Checklists**

These checklists are used by QUEST team members for their assessments and may be used by Supervisors to guide their walkthroughs.

**Environmental Management**.....Pages 16-20

**Offices**.....Pages 21-23

**Labs**.....Pages 24-27

**Shops**.....Pages 28-32

**Lockout/Tagout Inspection**.....Page 33



## LOCKOUT / TAGOUT INSPECTION FORM

This form shall be completed by the designated LOTO-authorized worker who inspected the LOTO-authorized worker's use of LOTO procedures. The work supervisor confirms performance of the inspection by signing this form.

Date of Inspection: \_\_\_\_\_

1. List the equipment/machines on which the LOTO procedure is being used.

\_\_\_\_\_

\_\_\_\_\_

2. Provide the names of the LOTO-authorized workers who performed the LOTO procedure that was inspected.

\_\_\_\_\_

\_\_\_\_\_

3. Identify any discrepancies uncovered by completing the LOTO Inspection Checklist. List any corrective actions.

Discrepancies	Corrective Actions

\_\_\_\_\_  
Signature of inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Division Safety Coordinator

\_\_\_\_\_  
Date

**AFRD QUEST Team  
ES&H/QA Concerns Report**

Please submit completed forms to Program ES&H Coordinator

**Date Found:** \_\_\_\_\_

**Name(s) of Finder(s)\*:** \_\_\_\_\_

**Program:** \_\_\_\_\_

\_\_\_\_\_  
**Concern:**

Location: Bldg: \_\_\_\_\_ Room and/or Area: \_\_\_\_\_

Description:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Status:  
 Resolved (date) \_\_\_\_\_  
 Will be resolved by this team, or  
 Referred to ES&H Coordinator, or  
 Referred to \_\_\_\_\_

\_\_\_\_\_  
**Concern:**

Location: Bldg: \_\_\_\_\_ Room and/or Area: \_\_\_\_\_

Description:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Status:  
 Resolved (date) \_\_\_\_\_  
 Will be resolved by this team, or  
 Referred to ES&H Coordinator, or  
 Referred to \_\_\_\_\_

**QUEST Meeting Report**

Please submit copy of completed forms to Program ES&H Coordinator

AFRD

Team Leader \_\_\_\_\_

Quality ES&H Self-Assessment  
Teamwork

Program: \_\_\_\_\_

Date: \_\_\_\_\_

**QA/ES&H Topic(s) of Discussion:**

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**Items of ES&H/QA Concern:**

<p>1. _____ _____</p> <p>Resolved Immediately <input type="checkbox"/> or (DATE) _____</p> <p>Will be Resolved by this team <input type="checkbox"/> or</p> <p>Referred to ES&amp;H Coordinator <input type="checkbox"/> or</p> <p><input type="checkbox"/> Referred to: _____</p>
<p>2. _____ _____</p> <p>Resolved Immediately <input type="checkbox"/> or (DATE) _____</p> <p>Will be Resolved by this team <input type="checkbox"/> or</p> <p>Referred to ES&amp;H Coordinator <input type="checkbox"/> or</p> <p><input type="checkbox"/> Referred to: _____</p>
<p>3. _____ _____</p> <p>Resolved Immediately <input type="checkbox"/> or</p> <p>Will be Resolved by this team <input type="checkbox"/> or</p> <p>Referred to ES&amp;H Coordinator <input type="checkbox"/> or</p> <p><input type="checkbox"/> Referred to: _____ or</p>

**Attendance (please print)**


**QUEST SELF-ASSESSMENT CHECKLIST  
for ENVIRONMENTAL MANAGEMENT**

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This checklist is designed to assist us in assessing how well we are doing in reducing our environmental impacts and managing wastes. The checklist has two parts: 1. Workplace Assessment and 2. Team Meeting Discussion.

**PART 1. WORKPLACE ASSESSMENT**

**WORKPLACE WASTE**

Are sharps disposed in approved red containers, labeled as sharps containers, with biohazard symbol removed or crossed out?

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Are there any computers, monitors, or other electronic equipment that are not being used that could be recycled or disposed?

---

Are there green battery buckets available in convenient locations for battery recycling?

---

Are there conveniently located recycling bins for white and mixed paper? Are they being used correctly?

---

Look at some wastebaskets. Are recyclable materials being kept out of the trash?

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**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)?

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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?

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

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Are liquid waste containers stored in secondary containment pans that are large enough to hold the entire contents of the largest container?

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Are containers kept closed, except when waste is being added or removed (no funnels left in containers)?

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### **DUMPSTERS and BINS**

Do dumpsters have properly functioning lids so rainfall cannot get inside them?

---

Are dumpsters and bins labeled with the waste type and being used for their proper purpose?

*Examples:*

- no trash in recycling bins,
  - no recyclable materials in trash dumpsters,
  - correct waste type in recycling bins,
  - no electronic waste such as computers or monitors in dumpsters or bins,
  - no liquids in dumpsters or bins.
- 

Is the area around the dumpsters and bins being kept clean (no overflowing waste, spills, or leaks)?

---

Are dumpsters and bins positioned so that they do not obstruct traffic, emergency egress, or pedestrian pathways?

---

Are recycling bins conveniently located near waste sources?

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## PART 2. TEAM MEETING DISCUSSION

By discussing these questions with your work group, areas for improvement and impediments to implementing activities may be identified. **Please discuss each of the following questions with your work group and rate your implementation of applicable measures from 1-4:**

- 1= Never
- 2= Sometimes
- 3= Usually
- 4= Always

### Offices

#### **Paper reduction**

- \_\_\_ Are copy machines' default settings set to make double-sided copies?
- \_\_\_ Are documents printed and copied on both sides?
- \_\_\_ Are documents stored and sent in electronic formats, rather than making hard copies?
- \_\_\_ Is paper that is clean on one side used routinely for in-house drafts and message pads?
- \_\_\_ Have cover sheets for faxes been eliminated?
- \_\_\_ Is your group using 100% recycled content paper?
- \_\_\_ Is used paper being recycled?

**Tip: Both white and colored paper can be mixed in the blue or green recycling bins. Large rolling cans can be ordered through the Work Request Center for office clean-outs.**

Describe any additional ways you have reduced or eliminated the use of paper:

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Action items:

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#### **Other Office Waste Reduction**

- \_\_\_ Are presentations using electronic formats rather than transparencies?
- \_\_\_ Are rechargeable batteries being used?
- \_\_\_ Are surplus office supplies used when available? **Tip: Surplus office supplies are at Bldg. 79. Call ext. 5497**
- \_\_\_ When purchasing supplies, do you select items made with recycled materials?

Describe any additional office waste reduction activities your group has implemented:

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---

Action items:

---

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**Recycling**

Are the following items being recycled?

- \_\_\_ aluminum cans and plastic bottles **Tip: Contact your custodian or the Work Request Center if you need additional beverage can recycling containers.**
- \_\_\_ cardboard **Tip: Flatten and place in cardboard bins, which should be located outdoors near each building cluster.**
- \_\_\_ transparencies **Tip: Place transparencies in collection boxes and send to Waste Management at mail stop 85R0203.**
- \_\_\_ floppy disks/CDs/Zip Disks **Tip: Delete all information. Place in collection box. When box is full, send to warehouse. For large quantities, call Waste Management at ext. 5877.**
- \_\_\_ toner cartridges **Tip: Package spent toner cartridges in original shipping box and place in mail pick-up. Obtain envelopes for recycling ink jet cartridges from EH&S Waste Management by calling ext. 5877.**
- \_\_\_ packing peanuts and bubble wrap **Tip: Place packing peanuts and bubble wrap in plastic bags at the Transportation pick-up area for your building.**
- \_\_\_ intact light bulbs **Tip: Contact the Work Request Center at ext. 6274.**
- \_\_\_ office supplies **Tip: Send to Bldg. 79. Call Transportation at ext. 5404 for pickup.**

Describe any additional recycling activities your group has implemented:

---

Action items:

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**Energy Conservation**

- \_\_\_ Is energy-efficient task lighting used where appropriate?
- \_\_\_ Are room occupancy sensors positioned to ensure lights are turned off when not needed?
- \_\_\_ Are space heaters and fans turned off when not needed?
- \_\_\_ Are energy-saving features activated on copiers and computers?
- \_\_\_ Are people using public transportation, walking/biking, car/vanpooling to get to work where practical?

Describe any additional energy conservation measures your group has implemented:

---

Action items:

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**Labs and Shops**

- \_\_\_ Are experiments and processes reviewed to determine whether there are non-hazardous or less hazardous alternatives to hazardous materials? **Tip: Contact Betsy MacGowan ext. 2826 or Maram Kassis ext. 6823 for assistance.**
- \_\_\_ Are hazardous materials purchased in the smallest volume that will meet the anticipated need?
- \_\_\_ Are oils, solvents, alcohols, and other liquid material containers stored in drip pans or trays?
- \_\_\_ Have thermometers and other mercury-containing equipment been replaced with non-mercury alternatives wherever possible? **Tip: Contact Betsy MacGowan ext. 2826.**
- \_\_\_ Are metal parts and equipment being separated from electronic waste and recycled? **Tip: Place scrap metal in scrap metal bins. Call ext. 4938.**
- \_\_\_ Are wood wastes being recycled? **Tip: Stack pallets and skids in neat stacks in loading area. Call Transportation at ext. 5404 for pickup. Send to warehouse. Place scrap lumber in "Wood Only" bins and call Grounds at ext. 4580 for pickup.**

Describe any additional lab/shop waste reduction or recycling activities your group has implemented:

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Action items:

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Are there any potential opportunities to reduce energy use or waste that you would like to propose for consideration for LBNL funding?

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## QUEST SELF-ASSESSMENT CHECKLIST for OFFICES

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### EMERGENCY PREPAREDNESS

Has up-to-date emergency information been posted (evacuation routes, assembly areas, contact people and phone numbers)? Are copies of the Emergency Response Guide (red and white flip chart, rev 9/05) posted? **Tip: contact Rocky Saunders ext. 7032 for copies of the Emergency Response Guide.**

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Are aisles, walkways, stairways, and exit doors unobstructed? Is the area free of tripping hazards?

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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?

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Have all heavy objects that could fall during an earthquake been secured safety (no bungee cords)?

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Is fire extinguisher access unobstructed?

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Where emergency lights are easily reachable without climbing ladders, test by depressing button. Are all emergency lights in operating condition?

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### ELECTRICAL SAFETY

Is access to electrical panels, including breaker boxes and disconnects, unobstructed?

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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)?

---

Are all receptacles and outlets in good condition?

---

Are labeled ground fault circuit interrupters (GFCIs) located on electrical outlets near water outlets and other areas where they may get wet?

---

Are power / extension cords in good condition (ground prong, jackets in good condition, no frayed insulation or exposed wiring, no evidence of modification)? Are unused extension cords rolled up and stored properly?

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Are extension cords used properly (not draped over furniture or fire sprinkler lines, appropriate for the load, taped down or covered with a bridge in walkways, not extending through doors or windows, not attached to additional extension cords)?

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Are power strips in good condition and used properly (not daisy chained; not permanently attached; not connected to equipment over 600 Watts/5 amps, such as heaters, cooking appliances, or fans)?

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Are electrical conduits free of attached cord, lines, equipment, decorations or other materials?

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## ERGONOMICS

Are there any people in the area who would like to request an ergonomic evaluation?

---

### OFFICE WORK BEHAVIOR OBSERVATIONS

**Computer work:** working with no pain or discomfort, feet flat on floor or on footrest with plenty of room to move around; chair comfortable with back well-supported; wrists straight and supported by adjustable armrests or Morensi board; head and neck straight forward or slightly down (top of monitor at eye height); avoids overextending reach; stretches periodically. Note any potential problems you observed for follow-up by ergonomic evaluator:

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**Lifting:** test 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 problems you observed for follow-up by ergonomist:

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## QUEST SELF-ASSESSMENT CHECKLIST for LABS

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### GENERAL SAFETY

Are interlock test procedures posted or readily available? Are interlock systems tested at least twice yearly (posted record of test within the last 6 months)?

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Are current work authorizations (AHDs, RWAs, SSAs, LMAs) posted or readily available for experiments that require them? Are lists of authorized personnel up-to-date?

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Is appropriate foot protection being used where there is risk of foot injuries?

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Are sharp cutting tools (razor blades, scalpels, knives, etc.) stored with the blade covered?

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### EMERGENCY PREPAREDNESS

Are entrances and work areas posted with the appropriate hazard warnings, emergency contact names, and telephone numbers? Are copies of the Emergency Response Guide (red and white flip chart, rev 9/05) posted? **Tip: contact Rocky Saunders ext. 7032 for copies of the Emergency Response Guide.**

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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?

---

Have all heavy objects that could fall during an earthquake been secured safely (no bungee cords)?

---

Is fire extinguisher and safety shower/eyewash access unobstructed?

---

Have eyewashes and safety showers been inspected within the last 3 months?

---

Are there adequate numbers and types of spill kits (e.g., flammable, acid, and base) available in work areas?

---

Where emergency lights are easily reachable without climbing ladders, test by depressing button. Are all emergency lights in operating condition?

---

## ELECTRICAL SAFETY

Is access to electrical panels, including breaker boxes and disconnects, unobstructed?

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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)?

---

Are all receptacles and outlets in good condition?

---

Are labeled ground fault circuit interrupters (GFCIs) located on electrical outlets near water outlets and other areas where they may get wet?

---

Are power / extension cords in good condition (ground prong, jackets in good condition, no frayed insulation or exposed wiring, no evidence of modification)? Are unused extension cords rolled up and stored properly?

---

Are extension cords used properly (not draped over furniture or fire sprinkler lines, appropriate for the load, taped down or covered with a bridge in walkways, not extending through doors or windows, not attached to additional extension cords)?

---

Are power strips in good condition and used properly (not daisy chained; not permanently attached; not connected to equipment over 600 Watts/5 amps, such as heaters, cooking appliances, or fans)?

---

Are all the necessary components (locks, tags) available to perform LOTO? Are equipment-specific LOTO procedures posted where required?

---

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 portable metal ladders clearly labeled "Do Not Use Around Electrical Equipment" and kept away from areas where the ladder or person using the ladder could come in contact with energized equipment?

---

Are electrical conduits free of attached cord, lines, equipment, decorations or other materials?

---

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

---

## 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 chemical containers and gas cylinders labeled with name of chemical contents and hazard? Have chemicals been entered into the Chemical Management System? (Check for a barcode.)

---

Do workers know how to find and use Material Safety Data Sheets?

*Pick a chemical container or gas cylinder. Ask a worker in the area to show you the MSDS and identify the hazards of the chemical.*

- Does the worker know what an MSDS is?
  - Can they quickly produce a current MSDS (either hard copy or from the website)?
  - Can they find the hazard information?
- 

Has appropriate Personal Protective Equipment (gloves, respirators, eyewear, shoes, etc.) been selected, made readily available, stored properly, and kept in good condition?

---

Are chemicals and gases stored properly?

*Examples:*

- Acids separated from bases?
  - Corrosives (acids and bases) separated from flammables and toxics?
  - Acetic acid stored with flammables?
  - Flammables >10 gal. stored in flammables cabinet?
  - Flammables and gas cylinders protected from heat and sources of ignition?
  - Stored in approved containers, tightly closed and covered when not in use?
  - Containment pans under liquids?
  - Gas cylinders secured by metal bracket, top and bottom chains, or on a cart secured to prevent rolling or tipping?
  - Regulators removed from gas cylinders not in use?
  - Chemicals and gases stored away from stairs and exits?
  - Overhead storage shelves equipped with shelf lips or latched doors?
  - Hazardous liquids stored away from sinks and drains?
- 

Are areas where food/drink are stored and consumed clearly separated from areas where chemicals are stored or used?

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Are fume hoods uncluttered (air flow not blocked)? Is there a sticker indicating the hood has been inspected and tested within the last two years?

---

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)?

---

## **SUSPECT/COUNTERFEIT PARTS**

Do key personnel know how to identify and report suspect parts?

---

Are periodic inspections of facilities, equipment, spaces and parts stocks being conducted to identify suspect parts?

---

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**

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:

---

PPE: wears protective equipment 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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## QUEST SELF-ASSESSMENT CHECKLIST for SHOPS

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### GENERAL SAFETY

Are ladders clean and in good condition, with non-slip safety feet?

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Are safety glasses available and in use in eye hazard areas?

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Is appropriate foot protection being used where there is risk of foot injuries?

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Are sharp cutting tools (razor blades, scalpels, knives, etc.) stored with the blade covered?

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### EMERGENCY PREPAREDNESS

Are entrances and work areas posted with appropriate hazard warnings, contact people and phone numbers? Are copies of the Emergency Response Guide (red and white flip chart, rev 9/05) posted? **Tip: contact Rocky Saunders ext. 7032 for copies of the Emergency Response Guide.**

---

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?

---

Have all heavy objects (furniture, computers, large equipment) that could fall during an earthquake been secured safely (no bungee cords)?

---

Is fire extinguisher and safety shower/eyewash access unobstructed?

---

Have eyewashes and safety showers been inspected within the last 3 months?

---

Are there adequate numbers and types of spill kits (e.g., flammable, acid, and base) available in work areas?

---

Where emergency lights are easily reachable without climbing ladders, test by depressing button. Are all emergency lights in operating condition?

---

## ELECTRICAL SAFETY

Is access to electrical panels, including breaker boxes and disconnects, unobstructed?

---

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)?

---

Are all receptacles and outlets in good condition? Are outlets near machines protected from metal chips?

---

Are labeled ground fault circuit interrupters (GFCIs) located on electrical outlets near water outlets and other areas where they may get wet?

---

Are power / extension cords in good condition (ground prong, jackets in good condition, no frayed insulation or exposed wiring, no evidence of modification)? Are unused extension cords rolled up and stored properly?

---

Are electrical feeds to machines in good condition and grounded?

---

Are extension cords used properly (not draped over furniture or fire sprinkler lines, appropriate for the load, taped down or covered with a bridge in walkways, not extending through doors or windows, not attached to additional extension cords)?

---

Are power strips in good condition and used properly (not daisy chained; not permanently attached; not connected to equipment over 600 Watts/5 amps, such as heaters, cooking appliances, or fans)?

---

Are all the necessary components (locks, tags) available to perform LOTO? Are equipment-specific LOTO procedures posted where required?

---

Are portable metal ladders clearly labeled "Do Not Use Around Electrical Equipment" and kept away from areas where the ladder or person using the ladder could come in contact with energized equipment?

---

Are electrical conduits free of attached cord, lines, equipment, decorations or other materials?

---

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

## **MACHINE GUARDING AND CONTROLS**

Are machine guards in place where needed to prevent workers or falling objects from making contact with moving parts, the point of operation, ingoing nip points, rotating parts, flying chips, and sparks?

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Are starting and stopping controls within easy reach of the operator? Are machines protected from restarting automatically after a power interruption?

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For grinders, is the work rest adjusted closely to the wheel with a maximum clearance of 1/8 inch, and the adjustable tongue or end of the peripheral member at the top of the housing adjusted to within 1/4" of the wheel?

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Are machines designed for a fixed location securely anchored to prevent movement?

---

Is there sufficient clearance around and between machines to allow for safe operations, set up and servicing, material handling and waste removal?

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## **CRANES, HOISTS, and FORKLIFTS**

Do lifting cables have inspection tags?

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Is secondary lifting gear in good condition?

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Is each pendant cable tagged with an LBNL "Warning, to Avoid Injury" tag?

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Is there an LBNL Proof Load Tag on the hoist? Does the load limit on the tag match the marking on the hoist? Is the rated load of each hoist legibly marked and visible to the operator?

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Are the controls of hoists plainly marked to indicate the direction of travel or motion?

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Is there a daily inspection tag or logbook? Is it being filled out whenever the crane/hoist is in use?

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When forklift trucks are left unattended, are the forks lowered, controls neutralized, hand brake set, wheels chocked, and keys removed from the ignition?

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Do all forklift trucks have seat belts?

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## CHEMICAL SAFETY

Are floors and work surfaces free of chemical residues? Have chemicals been entered into the Chemical Management System? (Check for a barcode.)

---

Are chemical containers and gas cylinders labeled with name of chemical contents and hazard?

---

Do workers know how to find and use Material Safety Data Sheets? *Pick a chemical container or gas cylinder. Ask a worker in the area to show you the MSDS and identify the hazards of the chemical.*

- Does the worker know what an MSDS is?
  - Can they quickly produce a current MSDS (either hard copy or from the website)?
  - Can they find the hazard information?
- 

Has appropriate Personal Protective Equipment (gloves, respirators, eyewear, shoes, etc.) been selected, made readily available, stored properly, and kept in good condition?

Are chemicals and gases stored properly?

- Acids separated from bases?
  - Corrosives (acids and bases) separated from flammables and toxics?
  - Acetic acid stored with flammables?
  - Flammables >10 gal. stored in flammables cabinet?
  - Flammables and gas cylinders protected from heat and sources of ignition?
  - Stored in approved containers, tightly closed and covered when not in use?
  - Containment pans under liquids?
  - Gas cylinders secured by metal bracket, top and bottom chains, or on a cart secured to prevent rolling or tipping?
  - Regulators removed from gas cylinders not in use?
  - Chemicals and gases stored away from stairs and exits?
  - Overhead storage shelves equipped with shelf lips or latched doors?
  - Hazardous liquids stored away from sinks and drains?
- 

Are areas where food/drink are stored and consumed clearly separated from areas where chemicals are stored or used?

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Has the performance of local ventilation systems been checked within the past two years (signed and dated inspection sticker)?

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## **SUSPECT/COUNTERFEIT PARTS**

Do key shop personnel know how to identify and report suspect parts?

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Are periodic inspections of facilities, equipment, spaces and parts stocks being conducted to identify suspect parts?

---

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?

## **SHOP WORK BEHAVIOR OBSERVATIONS**

Lifting: tests weight before lifting; gets help with large/awkward items; avoids awkward body positioning; bends knees when lifting; avoid bending over, twisting, overextending; checks path for hazards before carrying

---

PPE: wears protective equipment 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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Tool use: selects the right tool for the job; only uses tools and equipment the worker is trained and authorized to use; ensures tools are in good condition and guards in place before using; uses proper techniques; does not work alone in shop

**LOCKOUT/TAGOUT INSPECTION CHECKLIST**

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Procedure Inspection Criteria:

- Each equipment-specific written energy control procedure must be inspected by an Authorized (LOTO-trained) Employee on an annual basis.
- The Authorized Employee performing the inspection must be familiar with the LOTO procedures utilized as well as with the equipment's energy types and methods of controlling them.
- The inspector must not be a person who is involved in the actual use of the procedure on the equipment or apparatus.

<p><b>1. LOTO Procedure(s):</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Written energy control procedure(s) available.</li> <li><input type="checkbox"/> Written procedure identifies all hazardous energies to be controlled.</li> <li><input type="checkbox"/> Written procedure identifies control points and methods for all hazardous energies to be controlled.</li> <li><input type="checkbox"/> Written procedure identifies LOTO device to use for all hazardous energies to be controlled.</li> <li><input type="checkbox"/> Written procedure identifies how to release stored energy and prevent reaccumulation of all hazardous energies to be controlled.</li> <li><input type="checkbox"/> Written procedure identifies how to verify all hazardous energies are controlled.</li> <li><input type="checkbox"/> Written procedure identifies how to release from LOTO.</li> </ul>	<p><b>4. LOTO Practices:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Written energy control procedure(s) followed.</li> <li><input type="checkbox"/> Locks were placed and labeled.</li>   <li><input type="checkbox"/> Tags were placed and labeled.</li>   <li><input type="checkbox"/> All stored energy was released and prevented from reaccumulation.</li> <li><input type="checkbox"/> Control of all hazardous energies was verified.</li>   <li><input type="checkbox"/> Procedures for release from LOTO were followed.</li> <li><input type="checkbox"/> Each Authorized Employee involved in the procedure was able to describe their LOTO responsibilities.</li> </ul>
<p><b>2. Authorized Employee Knowledge:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Can demonstrate knowledge about the LOTO program, purpose and employee responsibilities.</li> <li><input type="checkbox"/> Can demonstrate knowledge about the appropriate lock and tag devices to use for all hazardous energies to be controlled.</li> <li><input type="checkbox"/> Can demonstrate knowledge about the placement location of all energy-isolating devices.</li> <li><input type="checkbox"/> Can demonstrate knowledge about any (or all) secondary or residual energy.</li> <li><input type="checkbox"/> Can demonstrate knowledge about the energy-isolation verification procedures.</li> <li><input type="checkbox"/> Can demonstrate knowledge about the necessary procedures if the equipment does not have a lockable energy-isolating device.</li> <li><input type="checkbox"/> Has received the required classroom and hands-on equipment specific training.</li> </ul>	<p><b>5. Effectiveness:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Discrepancies found in procedure(s):</li>   <li><input type="checkbox"/> Discrepancies found in knowledge:</li>   <li><input type="checkbox"/> Discrepancies found in practices:</li> </ul>
<p><b>3. LOTO Devices:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Appropriate LOTO devices available for each type of hazardous energy to be controlled.</li> <li><input type="checkbox"/> Appropriate support equipment/devices (grounding rods, measurement tools, etc) available for each type of hazardous energy to be controlled.</li> <li><input type="checkbox"/> Adequate number of LBNL approved locks available.</li> <li><input type="checkbox"/> Adequate number of LBNL approved tags available.</li> </ul>	

# QUALITY ASSURANCE and QUALITY IMPROVEMENT

## **LBNL Requirements**

It is the policy of LBNL to carry out all our activities in a reliable, safe, and high quality manner. It is line management's responsibility to set and execute annual performance objectives. In addition, every LBNL employee is individually responsible for the quality and safety of his/her work. Our quality program emphasizes three principles:

- The most essential resources at LBNL are the creative scientists, engineers, and support personnel.
- People who perform the work have the greatest effect on outcome and process quality.
- Problem prevention is more cost-effective than problem correction.

The basic implementing elements and guidelines of LBNL's Quality Assurance (QA) system are found in Chapter 8 of the Regulations and Procedures Manual and the **Operating and Quality Management Plan (OQMP), PUB-3111**. This plan describes the elements necessary to integrate quality assurance, safety management, and conduct of operations requirements into operations. The Office of Institutional Assurance (OIA) maintains the OQMP and the Office of Contract Assurance (OCA) monitors implementation.

The OQMP requires all LBNL organizations to maintain documents and/or websites that describe the organization, mission, and scope of work. Each Program has the opportunity to devise its own methods of addressing the basic documentation requirements described in the OQMP. Many of the requirements are already met by LBNL or General Sciences documents. Programs only need to develop documentation for procedures that are unique to their operations. Documents may be kept in Program/Project files, control rooms, desktop notebooks, or electronically. Facility and Function Notebooks are not required. The Program Head should maintain records of what the essential documents are and where they are kept.

Section 3.1 of the LBNL OQMP requires LBNL managers at all levels to regularly assess the performance of their organizations and functions. The scope of the assessments should include:

- Planning;
- Organizational interfaces (internal and external to the organization),
- Integration of management systems (safety, security, quality, project management);
- Organizational effectiveness, including customer satisfaction;
- Use of performance metrics;
- Training and qualifications;
- Supervisory oversight and support.

## **Quality Assurance at AFRD**

**AFRD Supervisors should incorporate relevant aspects of the QA checklist into their Supervisor Safety Plan walkthroughs.** The LBNL OQMP says management assessments should include evaluation of employee knowledge, motivation, and morale; communication among workers; the existence of an atmosphere of creativity and improvement; and the adequacy of human and materials resources. The assessments should involve direct observation of work so that the manager is aware of the interactions at the work location. The observations can be supplemented with worker and customer interviews, safety and performance documentation reviews, and drills or exercises.

**The use of the QA checklist by QUEST teams is an optional activity at the discretion of the Program Head.**

QA findings will be directed to the attention of AFRD management through the Program Heads meetings. QA issues that are limited to a particular Program will be referred to the Program Head for resolution. When QA issues are identified that may affect multiple Programs, the Division Director may request Program Heads to designate representatives to serve on special committees to address particular concerns or quality improvement efforts. The results of these special committee efforts will be reported to AFRD management for review and approval. AFRD Management will identify appropriate action items to be entered into CATS for tracking.

The following checklist is for QUEST teams or supervisors that wish to assess and improve their QA systems.

## QUEST SELF-ASSESSMENT CHECKLIST for QUALITY ASSURANCE

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### ORGANIZATION, PLANNING, AND STAFFING

**Organization Structure:** Check the website for your Program and work group. Does it include accurate descriptions of the Program and its work groups, including:

- group names,
  - mission and core functions,
  - organization chart,
  - roles and responsibilities?
- 

**Work Planning:** Are work planning documents for your group easy to find and identify? Do the documents effectively address:

- funding and allocation of resources,
  - scheduling of activities and milestones,
  - roles, responsibilities, and training of work group personnel,
  - requirements for drawings, procedures, data management, and technical reports,
  - identification of work authorization and ES&H requirements,
  - security needs for information systems and equipment,
  - performance measures, tracking of progress, corrective actions, and status reports?
- 

**Staff Proficiency--Documentation:** Ask group members to check the documents that demonstrate their proficiency and verify that they are accurate and up-to-date, including:

- position descriptions,
  - Job Hazards Questionnaires (updated within the last 12 months or more recently if job hazards or assignments have changed).
- 

**Staff Proficiency--Orientation:** Ask new people in your group about the orientation they received. Did it include introductions to key personnel, policies, work procedures, management expectations, hazards and safety requirements?

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### EQUIPMENT DESIGN, TESTING AND MAINTENANCE

**Design:** For each design, are there records of:

- design basis and performance criteria;
  - codes, standards, and regulatory requirements;
  - ES&H considerations (where applicable);
  - Security considerations (where applicable);
  - Independent technical review and management review and approval;
  - Document control process and revision status?
- 

**Equipment testing and maintenance:** Is equipment serviced, inspected, tested, and calibrated in accordance with manufacturer's recommendations, regulations, and procedures? Are nonconforming items taken out of service, marked, and segregated (if feasible) to ensure they are not used?

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## OPERATING PRACTICES

**Operating practices—controls:** Are there controls in place to prevent unauthorized personnel from activating hazardous equipment or distracting authorized personnel during critical operations?

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**Operating practices—shift change:** Are there logbooks or other reliable methods for passing critical information such as work instructions, staff or equipment status changes, abnormal conditions, etc. to incoming staff?

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## PROCUREMENT AND PROPERTY MANAGEMENT

**Procurement -- ordering:** Do group members know and follow the procedures for purchasing items needed for their work? Are there processes and controls in place to ensure adequate consideration of safety, project schedule, cost, quality, and technical specifications when procuring items?

---

**Procurement – receiving:** When items are received, are they inspected to ensure the items match the description in the order, are in good condition, and function properly? Are unacceptable items separated from good ones, reported to procurement, and returned promptly? Are new property assets bar-coded, inventoried, and assigned to an appropriate “custodian”?

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**Property management--inventory:** Are property assets assigned to “custodians” who are current LBNL employees with knowledge about the assets’ location and condition? Do custodians know how to find and follow procedures for properly reporting changes in location, status, or ownership of property to the AFRD Property Representative?

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**Property management—storage:** Are items stored under conditions that prevent damage, loss, or deterioration? Are any special storage needs identified (packaging, shelf life, temperature/moisture, etc.)?

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**Property management--security:** Are there adequate safeguards in place to prevent theft or damage to property from malicious acts, including: maintenance of vehicle use logs, removing keys from vehicles when not in use, locking buildings when no one is present, sufficient lighting in work and storage areas?

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**Property management—shipping/transportation/disposal:** Do group members know how to find the requirements for packing, moving, shipping, and disposing of the materials and equipment they use?

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## DATA, DOCUMENT, AND RECORDS MANAGEMENT

**Information and communication:** Do LBNL and Program information systems provide the information you need to do your job? Is the information timely and accurate? Is it easy to find and use?

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**Cybersecurity:** Do all computers have up-to-date virus protection software and security patches? Are passwords chosen in accordance with LBNL guidelines, changed frequently, and not written down where they are easy to find?

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**Procedures:** Are there written procedures readily available for important or complex work processes? Are the procedures, current, accurate, and complete? Do the procedures contain:

- Approval signatures and effective date,
  - Title and revision number,
  - Purpose and scope,
  - Definitions of acronyms and special terms,
  - Work steps with responsibilities and controls,
  - References for sources of requirements?
- 

**Data collection:** Do data collection and analysis procedures:

- Ensure data is traceable to the data collection or sampling activity;
  - Ensure the data collection, sampling, and analysis equipment is properly functioning and calibrated?
  - Conform with accepted standards or references, where applicable;
  - Include data/sample handling and custody requirements;
  - Adequately and accurately identify samples and data sets (how, when, where, by whom was it produced);
  - Utilize the most appropriate statistical analysis methods;
  - Provide for maintenance of records?
- 

**Records management:** Does the administrative staff maintain a records or file inventory? Have they been trained in Archives and Records requirements?

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**Scientific and technical publications:** Have documents intended for publication been processed through the Report Coordination Office (check for assigned report number)? Is there a current list of qualified AFRD reviewers?

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## ASSESSMENTS AND IMPROVEMENTS

**Assessments:** Does the group conduct its own management assessments? Are periodic assessments (i.e., QUEST and others) being performed?

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**Improvements:** Are deficiencies related to reliability, quality and safety identified and tracked in the CATS database and closed in a timely manner? Are lessons learned and best practices shared within and between work groups?

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