



QEW1 Job Safety Plan



Use only for work on equipment with source voltage up to 300 VAC and non-hazardous switching

Person In Charge:

Date:

Work Location (Building/Room):

Overall Scope of Work:

Key Steps:

- 1
- 2
- 3
- 4
- 5
- 6
- 7



Complete each item below and perform job briefing before beginning work

1. PPE and Tool Inspection Checklist

See Field Guides

(Check each item after inspection):

- Safety glasses (ANSI Z87)
- Non-melting clothing to include long pants and long sleeves
- Non-melting safety footwear that fully covers the feet
- Remove Conductive Articles
- Shock protection gloves
- Insulated tools
- CAT/NRTL Multimeter

2. Modes Of Work

Equipment Location/Name:

(Check all that apply):

- Mode 0 – Electrically Safe Work Condition
- Mode 1 – LOTO & Zero Voltage Verification (ZVV)
- Mode 2 – Energized Diagnostics (Testing & Troubleshooting)

3. Conditions for Normal Operation - (must check all boxes for Normal Condition):

- Properly installed
- Properly maintained (call Facilities Engineering if needed)
- Used per listing/labeling
- All covers/doors on and bolted/latched
- No signs of impending failure
- Not** energizing equipment for first time or after electrical repair

Check with ESO if conditions for normal operation are not met

4. Switching See Field Guide 9

Switch Location/Name: **Leather glove and safety glasses required**

Conditions for Non-Hazardous Switching (select one):

- Less than 250 VAC and Normal Operating Condition?
- Less than 250 VAC and incident energy less than 4 cal/cm² and energizing for first time or after repair?
- Greater than 250 VAC and incident energy less than 4 cal/cm²?
- Greater than 250 VAC, no AF label, 60 Amps or less?

5. Shock Risk Assessment (SRA) See Field Guide 4

Exposure to live parts? YES NO (if "NO", skip rest of section) **Energized parts are not enclosed, guarded, or insulated**

Highest exposure voltage? AC DC Other

Limited Approach Boundary (LAB) is 42 inches for all QEW1 AC work, or DC Boundary Table:

Restricted Approach Boundary (RAB)? 3 inches (< 150 VAC), 12 inches, or DC Boundary Table:

RAB Requirements: QEW only - Shock PPE required - Insulated tools required - Remove conductive articles

Shock Protection Glove Class required? 00 0 1 2 3 **Use Class 0 gloves up to 1000 VAC and 1500 VDC**

6. Arc Flash Risk Assessment (AFRA) for Any Equipment less than 300 VAC Input Voltage

Conditions for No Arc Flash Hazard (select one)

- AF Sticker with Incident Energy less than 1.2 cal/cm² at 18 inches?
- Cord and plug with less than 100 A rated input?
- 120 VAC (not in a 208 VAC panel)?
- 277 VAC, single phase (not in a 480 VAC panel)?
- At least two circuit breakers or fuses are installed between the equipment and the closest upstream transformer?
- Available fault current is less than 2000 A?
- Visual Inspection with panels removed while equipment is deenergized and outside of LAB?

**If none of these apply, STOP WORK.
Arc Flash Hazard may be present**

7. Capacitor Risk Assessment See Field Guide 16

Greater than 100 V and more than 10 Joules? If yes, work requires a Complex LOTO Procedure

Capacitor Bus Voltage

Capacitor Total Stored Energy

Discharge Wait Time

8. Type of LOTO See LOTO Guide

Cord and Plug (cord-and-plug equipment with no hazardous stored energy)

Simple (one energy source, lockable from a single isolation, no hazardous stored energy; locking it out does not create hazards for others)

Complex LOTO **CLP#** _____ (Required for stored hazardous energy or multiple isolations)

LOTO Permit **LP#** _____ (Required for subcontractors)

9. Second Person See Field Guide 10

Second Person not required for AC line voltage hazards up to 300 VAC if shock protection gloves are worn and there is no arc-flash hazard. Hazard Class 1.2a and 1.2b.

Second person required for DC Hazard, Capacitor Hazard, or Sub-RF hazard classes 2.2b, 2.2c, 3.2b, 3.2c, 6.2f. Second Person Requires Supervisor or Work Lead approval.

10. Environmental Conditions

<input type="checkbox"/> Insufficient lighting	Requires Supplemental Lighting
<input type="checkbox"/> Wet location	Can you perform the work safely today?
<input type="checkbox"/> Confined space	Requires Confined Space Permit
<input type="checkbox"/> Insufficient/cramped/awkward space	Develop escape or rescue plan. May require a second person.
<input type="checkbox"/> Heavy traffic	Requires Barricade Tape or Attendants
<input type="checkbox"/> Fall hazard	Requires Approved Fall Matrix
<input type="checkbox"/> Lookalike equipment	Requires Flagging and Blocking
<input type="checkbox"/> Noisy environment	Turn off loud equipment or ensure communication is feasible
<input type="checkbox"/> Time Sensitive	Use STAR method (see last page of JSP)

11. Error Precursors

Review Error Precursors at end of JSP and identify any mitigations:

1. _____

2. _____

3. _____

4. _____

5. _____

12. Emergency Plan	See Emergency Response
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Nearest landline location: _____ Call 911 from an LBL landline phone

- Sufficient cell phone signal? Call 510-486-6999 from cell phone for LBL response
- Clear exit path? AED nearby? Location _____
- Fire extinguisher nearby? Location _____
- Contact release method available: Switch or Circuit Breaker Rescue Hook Shock Gloves
- Second person identified, trained and briefed?

13. Control of Work Area	See Field Guide 12
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Barricade Tape or Attendants:

- NOTICE
- WARNING
- DANGER (Mandatory for Mode 2 work)
- Attendants briefed and in place

Mode 0: NOTICE Barricade Tape or Signs to join LOTO

Mode 1: WARNING Barricade Tape at 42" or Greater Required For High Traffic Areas

Mode 2: DANGER Barricade Tape at 42" or Greater Always Required

14. Perform a Job Briefing	See Field Guide 6
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|--|---|
| <ol style="list-style-type: none"> 1. Detailed Scope of Work 2. Shock and Arc Flash hazards for each task 3. Controls to mitigate the hazards <ul style="list-style-type: none"> • Work Procedures • Special Precautions • Energy Source Controls • PPE Requirements • Verify all PPE is inspected (see Step 1) | <ol style="list-style-type: none"> 4. Control of Work Area <ul style="list-style-type: none"> • Barricades • Signage • Attendants / Second Person 5. Emergency Plan |
|--|---|

Role	Name	Signature	Date and Time
Person In Charge			
Second Person			
Other Participant			
Other Participant			
Other Participant			
Other Participant			
Other Participant			

Error Precursors

Task Demands

1. Time Pressure (in a hurry)
2. High workload (large memory)
3. Simultaneous, multiple actions
4. Repetitive actions / Monotony
5. Irreversible actions
6. Interpretation requirements
7. Unclear goals, roles, or responsibilities
8. Lack of or unclear standards

Individual Capabilities

1. Unfamiliarity with task / First time
2. Lack of knowledge (faulty mental model)
3. New techniques not used before
4. Imprecise communication habits
5. Lack of proficiency / Inexperience
6. Indistinct problem-solving skills
7. Unsafe attitudes
8. Illness or fatigue; general poor health or injury

Work Environment

1. Distractions / Interruptions
2. Changes / Departure from routine
3. Confusing displays or controls
4. Work-arounds / OOS Instrumentation
5. Hidden system / equipment response
6. Unexpected equipment conditions
7. Lack of alternative indication
8. Personality conflict

Human Nature

1. Stress
2. Habit patterns
3. Assumptions
4. Complacency / Overconfidence
5. Mind-set (intentions)
6. Inaccurate risk perception
7. Mental shortcuts or biases
8. Limited short-term memory

Error Mitigations

1. Reduce overall risk upfront.

- Identify ways to avoid reliance on PPE and move up the hierarchy of controls.

2. Develop and adhere to a written Electrical Safe Work Plan.

- Step-by-step procedure read, outcome understood.
- Circle the task to be performed, check off each task as it is completed.
Assign person to manage the procedure

3. Self-check with verbalization.

- Stop, Think, Act, Review (STAR).
- Verbalize intent before, during, and after each task.

4. Establish clear communications.

- Limit unnecessary chatter, move bystanders away.
- Shutdown/slow down noise-producing machinery.
- Use three-way communication methods: verbal repeat back of all procedure steps before execution, and verbal confirmation that each step is complete.
- Use of the phonetic alphabet for clarity.

5. Stop when unsure.

- Verify initial conditions prior to starting a procedure, and final conditions at the end.
- Establish hold points to verify conditions.
- Stop and obtain further direction when unable to follow a procedure or process step or if something unexpected occurs.
- Maintain a questioning attitude.

6. Flagging and Blocking.

- Identify (flag) equipment and controls that will be operated or opened.
- Prevent access (block) to equipment and controls that should not be operated or opened.

STAR is an acronym people use to help them remember to slow down and concentrate on an important action or task. STAR stands for Stop, Think, Act, Review.

1. Stop – Pause.

- Pause before performing critical activities.
- Eliminate distractions and focus on the activity.

2. Think – Understand what is to be done before performing actions.

- Understand what will happen when correct action is taken on the correct component.
- Verify that conditions match those discussed during the pre-job briefing.
- Verify that the action is appropriate, given the equipment status.
- Identify expected outputs/results of the action.
- Compare conditions to the controlling document.
- Consider a contingency if an unexpected result occurs.
- If uncertain, use the questioning-attitude (FACTS) tool.

3. Act – Perform the correct action on the correct component.

- Follow relevant guidance (procedure, policy, and other guidance).
- Without losing eye contact with the component, read and touch the component label.
- Compare the component label with the guiding document.
- Perform planned actions for the specific activity.

4. Review – Verify anticipated result is obtained.

- Verify that outputs or results match the expected outputs/results.
- Perform the contingency, if the expected result does not occur.
- Notify supervisor, as needed.