

Electrical Risk Assessments

EHS Procedure EHS-SAF-40.4, Rev. 0
Effective Date: 09/01/2015

APPENDIX F: ELECTRICAL RISK ASSESSMENT FORM

ELECTRICAL RISK ASSESSMENT FORM		
1. GENERAL		
Date:	Equipment:	Nominal System Voltage Range, Phase to Phase:
Qualified Personnel:	Accurately labeled <input type="checkbox"/> Y <input type="checkbox"/> N Location:	<input type="checkbox"/> Exposed Movable Conductor <input type="checkbox"/> Exposed Fixed Circuit Part
2. TASK		
<input type="checkbox"/> Reading a panel meter while operating a meters switch <input type="checkbox"/> Normal operation of a circuit breaker (CB), switch, contactor, or starter <input type="checkbox"/> Work on energized electrical conductors and circuit parts, including voltage testing <input type="checkbox"/> Voltage testing on individual battery cells or individual multi-cell units <input type="checkbox"/> Removal or installation of CBs or switches <input type="checkbox"/> Removal or installation of covers for equipment such as wireways, junction boxes, and cable trays that does not expose bare energized electrical conductors and circuit parts <input type="checkbox"/> Removal of bolted covers (to expose bare energized electrical conductors and circuit parts). <input type="checkbox"/> Removal of battery intercell connector covers <input type="checkbox"/> Opening hinged door(s) or cover(s) (to expose bare energized electrical conductors and circuit parts) <input type="checkbox"/> Perform infrared thermography and other noncontact inspections outside the restricted approach boundary. This activity does not include opening of doors or covers. <input type="checkbox"/> Application of temporary protective grounding equipment after voltage test <input type="checkbox"/> Work on control circuits with exposed energized electrical conductors and circuit parts, 120 volts or below without any other exposed energized equipment over 120 V including opening of hinged covers to gain access <input type="checkbox"/> Work on control circuits with exposed energized electrical conductors and circuit parts, greater than 120 V <input type="checkbox"/> Insertion or removal of individual starter buckets from motor control center <input type="checkbox"/> Insertion or removal (racking) of CBs or starters from cubicles, doors open or closed <input type="checkbox"/> Insertion or removal of plug-in devices into or from busways <input type="checkbox"/> Insulated cable examination with no manipulation of cable <input type="checkbox"/> Insulated cable examination with manipulation of cable <input type="checkbox"/> Work on exposed energized electrical conductors and circuit parts of equipment directly supplied by a panelboard or motor control center <input type="checkbox"/> Insertion and removal of revenue meters <input type="checkbox"/> For dc systems, insertion or removal of individual cells or multi-cell units of a battery system in an enclosure or open rack. <input type="checkbox"/> For dc systems, maintenance on a single cell of a battery system or multi-cell units in an open rack <input type="checkbox"/> For dc systems, work on exposed energized electrical conductors and circuit parts of utilization equipment directly supplied by a dc source <input type="checkbox"/> Insertion or removal (racking) of CBs from cubicles <input type="checkbox"/> Insertion or removal (racking) of ground and test device <input type="checkbox"/> Insertion or removal (racking) of voltage transformers on or off the bus <input type="checkbox"/> Opening voltage transformer or control power transformer compartments <input type="checkbox"/> Outdoor disconnect switch operation (hookstick operated) at 1 kV through 15 kV <input type="checkbox"/> Outdoor disconnect switch operation (gang-operated, from grade) at 1 kV through 15 kV <input type="checkbox"/> Other Tasks, EXPLAIN:		
3. POTENTIAL ELECTRICAL HAZARDS <i>Arc flash potential determined from NFPA 70E Table (C)(1.5)(A)(a) and EHS-SAF-40.4 Appendix C</i>		
<input type="checkbox"/> Electrical shock <input type="checkbox"/> Arc flash		
4. POTENTIAL RISKS		
Potential Severity of Injury or Damage to Health		
<input type="checkbox"/> Irreversible — trauma, death <input type="checkbox"/> Permanent — skeletal damage, blindness, hearing loss, third degree burns <input type="checkbox"/> Reversible — minor impact, hearing damage, second degree burns <input type="checkbox"/> Reversible — minor laceration, bruises, first degree burns		
Frequency of 10 Minute Exposures		
<input type="checkbox"/> ≤ 1 per hour <input type="checkbox"/> 1 per hour – 1 per day <input type="checkbox"/> 1 per day – 1 per week		<input type="checkbox"/> 1 per 2 weeks – 1 per year <input type="checkbox"/> > 1 per year
Likelihood of Hazardous Event		Likelihood of Avoiding Injury
<input type="checkbox"/> Very high <input type="checkbox"/> Likely <input type="checkbox"/> Possible <input type="checkbox"/> Rare <input type="checkbox"/> Negligible		<input type="checkbox"/> Impossible <input type="checkbox"/> Rare <input type="checkbox"/> Probable
Protective Measures Already Established		
<input type="checkbox"/> Barriers <input type="checkbox"/> Signage <input type="checkbox"/> SOPs		<input type="checkbox"/> Training <input type="checkbox"/> PPE <input type="checkbox"/> Other Controls, Explain
5. SHOCK APPROACH BOUNDARIES <i>From NFPA 70E Table 130.4(D)(a) or (b) and EHS-SAF-40.4 Appendix B</i>		
Restricted Approach Boundary (feet) =		Limited Approach Boundary (feet) =
6. ARC FLASH BOUNDARY <i>From NFPA 70E Table 130.7(C)(1.5)(A)(b) or (B) and EHS-SAF-40.4 Appendix D</i>		
Method for determining Arch Flash Boundary:		
<input type="checkbox"/> Arc Flash PPE Categories Method (from NFPA 70E Table 130.7(C)(1.5)(A)(b) or (B) and EHS-SAF-40.4 Appendix D) <input type="checkbox"/> Incident Energy Analysis Method (select method and attach calculations)		
<input type="checkbox"/> Ralph Lee Calculation Method <input type="checkbox"/> Doughty Neal Calculation Method <input type="checkbox"/> Institute of Electrical and Electronics Engineers 1584 Calculation Method <input type="checkbox"/> Detailed Arcing Current and Energy Calculations Method		
Arc Flash Boundary (feet) =		PPE Category =
7. ARC FLASH PPE REQUIREMENTS <i>From NFPA 70E Table 130.7(C)(1.6) or H.3(b) and EHS-SAF-40.4 Appendix E</i>		
Protective Clothing and PPE:		Protective Equipment: