

**Table 3: Procedures for Work in SSRL Accelerator Tunnel Following Operator Lock-Out of Exposed Electrical Hazards  
Booster/BTS Tunnel**

- NOTES:** 1. All exposed electrical hazards in the tunnel are locked out and verified by the operator.  
2. Some exposed electrical hazards in Booster tunnel are not controlled by the PPS. All electrical hazards are included in Ops lock-out.

L/T/V = lock/tag/verify PA = Permitted Access CA = Controlled Access

Work Type	Work Description	Tunnel Exposed Electrical Hazard Control	Work Plan <sup>(1)</sup>
1	“Major work” directly on exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out (e.g. disconnecting, drilling or welding magnet leads, etc.)	PA: Lock/tag on Ops lock box CA: Lock/tag on Ops lock box (+ PPS gate key)	-
2	- “Minor work” directly on exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out (e.g. tightening coil connections or water fittings, servicing klixons, etc..) - Work on non-hazardous equipment within 1 ft of exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out (e.g. photon beam lines, water circuits, alignment, etc.) - Tunnel inspection with possible or known contact with exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out (including search)	PA: Lock/tag on Ops lock box CA: Lock/tag on Ops lock box (+ PPS gate key) if exposed electrical hazard not included in PPS; PPS gate key if exposed electrical hazard included in PPS	-
3	Work on hazardous electrical equipment not controlled by the tunnel access lock-out (e.g. re-terminating ion pump cables) within 1 ft of exposed conductors of hazardous equipment controlled by Ops tunnel access lock-out	PA: Lock/tag on Ops lock box + L/T/V for electrical hazard not included in Ops lock-out CA: Lock/tag on Ops lock box if Ops-locked exposed elec. hazard not included in PPS + L/T/V for elec. hazard not in Ops lock-out; PPS gate key if Ops-locked exposed elec. hazard in PPS + L/T/V for elec. hazard not in Ops lock-out	EWP for work on elec. hazard not in Ops lock-out
4	Work on hazardous electrical equipment not controlled by tunnel access lock-out >1ft from exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out	PA: L/T/V for electrical hazard not in Ops lock-out (+ lock/tag on Ops lock box if person not tunnel electrical hazard-qualified) CA: L/T/V for electrical hazard not included in Ops lock-out (PPS gate key needed for entry only)	EWP for work on elec. hazard not in Ops lock-out
5	- Work on non-hazardous equipment >1ft from exposed conductors of hazardous elect. equipment controlled by Ops tunnel access lock-out - Tunnel inspection >1ft from exposed conductors of hazardous electrical equipment controlled by Ops tunnel access lock-out	PA: None (lock/tag on Ops lock box if person not tunnel electrical hazard-qualified) CA: None (PPS gate key needed for entry only)	-
6	Escorted inspection or tour with or without known contact with exposed conductors of hazardous electrical equipment controlled by tunnel access lock-out	PA: Lock/tag on Ops lock box for escort; escorted persons sign in/out CA: Lock/tag on Ops lock box for escort + PPS gate key per person; Ops log-in/out	-

<sup>1</sup>In all cases, it is assumed that staff have valid routine JHAMS and, if required, non-routine JHAMS and/or EWPs, as enforced by supervisors.