

**Table 4: Procedures for Work in SSRL Accelerator Tunnel Following Operator Lock-Out of Exposed Electrical Hazards  
SPEAR Tunnel**

**NOTES:** 1. All exposed electrical hazards in SPEAR tunnel are controlled by the PPS and 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 Oock box	-
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 ps llock box CA: PPS gate key	-
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 in Ops lock-out CA: PPS gate key + 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 included 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: 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 supervisor.