King County
Department of Transportation
Metro Rail Operations Section

SOUNDTRANSIT
RIDE THE WAVE

Standard Maintenance Procedure	SMP: 27.5	Page 1 of 7
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Lockout/Tagout Procedure

Approved: _____ Date: April 24, 2009
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1.0 PURPOSE

This program applies to all work operations at Link Light Rail where employees must deal with Lockout/Tagout situations as part of their job duties.

This procedure establishes Link requirements for the PPE lockout of energy isolating devices whenever maintenance or servicing is done in a Traction Power Substation (TPSS) or Overhead Contact System (OCS) and on machines or equipment in accordance with the requirements of WAC-296-45. It is used to ensure that the TPSS devices and OCS, and machine's or equipment are stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

2.0 DEFINITIONS

Personal Protective Equipment (PPE) – Equipment or protectors which are insulated and must be worn for the protection of workers performing specified tasks in all high voltage environments. This equipment also includes gloves, vests, hard hats, locks, tags and other equipment.

Qualified Person - One who has skills and knowledge related to the construction and operation of the high voltage electrical equipment and installations and has received and tested on high voltage safety training to recognize and avoid the hazards involved. Performing preventive maintenance and while working the overhead contact system energized in an insulated aerial bucket or platform trucks with proper PPE.

Un-Qualified Person - One who has no skills or knowledge of the related construction or operation of the high voltage electrical equipment or installations and has not received or been tested on high voltage safety training to recognize and avoid the hazards involved. Performing any preventive maintenance or while working within 10 ft. of the overhead contact system or working within 10 ft. of traction power substation while energized will require a permit and lockout/tagout request form.

3.0 REQUIREMENTS

3.1 All personnel must be trained, tested, and qualified before operating any equipment or working on the Traction Power Energized/De-energized System.

3.2 All personnel must pass a safety training course provided by Link before becoming qualified and all update safety refresher courses provided by Link after having been qualified.

3.3 All personnel shall operate all switches and equipment in compliance with established WAC -296-45 Rules, Policies and Procedures at all times.

3.4 Un-Qualified employees require a work permit and a lockout/tagout if working within 10 ft. of energized overhead contact system or working within 10 ft. of traction power substation. All un-qualified employees shall have proper PPE. Un-qualified persons may be required to have a qualified person monitor their work.

4.0 PROCEDURES

DE-ENERGIZING OF POWER:

THE OCS SHALL BE CONSIDERED ENERGIZED AT ALL TIMES!

4.1 Ensure that the written Lockout/Tagout Request Form has been approved by the Track Access Coordinator and Traction Power Chief and then coordinate activities with the Lockout /Tagout Requestor and LCC.

4.2 Coordinate with LCC Controller that all trains are outside of the Block or affected area to be de-energized or energized.

4.3 All communications during de-energizing and energizing, setting on or off any hi-rail equipment will be conducted by Link radio, unless directed by LCC to use other emergency means or other equipment.

4.4 Call LCC for permission to place red flags, safety cones, flashing strobes, and de-energized signs 100 ft. outside the limits of the affected de-energized section(s) of track. The red flags, safety cones, flashing strobes, and de-energized signs, must be placed approximately 100 ft. on the energized side of the OCS to ensure no LRV or hi-rail equipment can pass the red flag, safety cones, flashing strobes, and de-energized signs. These devices are a warning to prevent transferring power from an energized section to a de-energized section. A Link Qualified Electrician must inform the LCC Controller by radio of the location of red flags, safety cones, flashing strobes, and de-energized signs so others can monitor this information.

4.5 Call LCC if de-energizing a substation(s), and request to enter and open the AC or DC breaker(s) or switch(s) to de-energize the system. Switch the # 43 device to local and open AC or DC Feeder Breakers. They must then be racked out and then a lock must be placed on the DC Feeder Cabinet Door to prevent the breaker from being re-inserted. (Link Qualified Electrician lock(s) shall be the first one placed on the multi-lock device). There must be a tag for each lock placed on breaker or switch and

information completed on the tag. Call LCC to provide all locations of locks and lockout tag numbers.

NOTE: *TPSS may be equipped with Kirk key safety locks on DC mains, DC breakers and DC switches, which require another detailed procedure for only the Link Electricians during de-energizing and energizing process.*

NOTE: *In addition to the tunnel sectionalization switches which have a SCADA control only at LCC. This will require LCC to tagout the controlled operation of the SCADA device during de-energizing and energizing lockout tagout process. At the tunnel and all sectionalization switches the Qualified Link Electrician will use his PPE to remove the control fuses opening the circuit to SCADA control and tagout fuse block.*

4.6 Call LCC if Opening or Closing any No-Load Sectionalization switches within the OCS. Request permission to enter the alignment and provide location and if you are opening or closing the DC sectionalization switches, then lockout/tagout the DC Sectionalization Switches to prevent the sectionalization switch from being operated. (Link Qualified Electrician lock(s) and tags shall be the first one placed on the multi-lock device.) There must be a tag for each lock placed on breaker or switch and the information must be completed on each tag.

4.7 Test the Overhead Contact Wire or Traction Power Substation Equipment via a Volt Meter (2000-Volt DC Meter) to ensure that Power has been De-energized. Check meter on a known energized source.

4.8 Call LCC to advise that the OCS or TPSS has been tested for voltage.

4.9 Call LCC to request permission to place Ground Cables/Clamps/Magnets, red flags and safety cones on each side of the Work Area, but inside of the de-energized area, 100 ft. on each track from where the power has been de-energized. Advise LCC of the nearest OCS pole number or TPSS location where grounds have been installed.

4.10 Ground Cables/Clamps/Magnets MUST be securely grounded to the Running Rail ONLY (NO POLE OR EARTH GROUNDS ARE PERMITTED).

ENERGIZING OF POWER:

THE OCS SHALL BE CONSIDERED ENERGIZED AT ALL TIMES!

4.11 Prior to beginning the energization process ensure that pending Lockout Tagout Forms are returned. The written Lockout/Tagout Request Form has been returned and requestor notified of the energizing procedure and the requestor has verified all of his personnel and equipment is clear of the alignment.

4.12 A Link Qualified Electrician will call LCC to advise of this information and request permission to proceed energizing the system after verifying all personnel and equipment are clear of the alignment.

4.13 All communications during de-energizing and energizing, setting on or off any hi-rail equipment will be conducted by Link radio unless directed by LCC to use other means or equipment.

4.14 Call LCC to request permission to remove Ground Cables / Clamps / Magnets and red flags, safety cones, each side of the Work Area inside of the de-energized area. Advise LCC of the nearest OCS pole number or TPSS locations from which the grounds are being removed and recite the information from Lockout/Tagout Request Form.

4.15 Call LCC if energizing a substation(s), request to enter, remove all locks and tags and provide all lockout tag numbers to LCC. Then request permission from LCC to close the AC or DC breaker(s) or switches to energize the system. AC or DC Feeder Breakers or Switches Must Then Be Racked in and closed by using the local # 43 switch or by switching # 43 switch to remote and request LCC to close by SCADA per the request from Link Qualified Electrician.

4.16 Call LCC if Opening or Closing any No-Load Sectionalization switches within the OCS. Call LCC to request permission to enter the alignment to remove locks and tags for energization and, if required, sectionalization of DC Switches. Provide pole number and location from which you are removing the locks and lockout tags and provide LCC with the lockout tag numbers. Advise LCC which DC No Load sectionalization switches you are opening or closing for energizing the OCS. Lockout and tagout the DC Sectionalization Switches to prevent the switches from being operated. There must be a Lock and Tag for each lock placed on any breaker or switch and the information completed on each tag.

4.17 Test the Overhead Contact Wire or Traction Power Substation Equipment with a Volt Meter (2000-Volt DC Meter) to confirm that Power **Has Been Energized**.

4.18 Call LCC to advise that the OCS or TPSS has been tested for voltage and all persons and equipment are clear of the alignment. LCC can now proceed with revenue service.

5.0 RESPONSIBILITIES

5.1 Wear approved and tested PPE rubber gloves with leather protectors when performing "Energized" or "De-energized" work. If the OCS is de-energized never depend solely on the Aerial Lift Equipment to provide personal insulation if doing heavy repair (Unless the OCS in work area, has been "De-energized" – Tested for Voltage with 2kV dc meter – then grounded from Negative (Rail) to Positive (OCS) with ground cable/clamps/magnets or an approved grounding type disconnect switch).

6.0 APPENDIX

None

7.0 SUMMARY OF CHANGES

None