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**NAVY PUBLIC WORKS CENTER  
NORFOLK, VIRGINIA  
UTILITIES DEPARTMENT**

**STANDARD OPERATING PROCEDURE / JOB HAZARD ANALYSIS**

**TITLE**  
**INSTALL/REPLACE INTERLOCK SYSTEM**  
**ON A HIGH VOLTAGE SWITCHGEAR**

**PROCEDURE NUMBER**  
**WC 622 HVE 057**

**SIGNED:** \_\_\_\_\_ **(DATE)**

**APPROVED:** \_\_\_\_\_ **(DATE)**

**SAFETY PROFESSIONAL:** \_\_\_\_\_ **(DATE)**

**MANAGEMENT OFFICIAL:** \_\_\_\_\_ **(DATE)**

REVISION

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## INSTALL/REPLACE INTERLOCK SYSTEM ON A HIGH VOLTAGE SWITCHGEAR

### **Purpose:**

Procedure to install, or replace, an interlock system on a high voltage switchgear.

The interlock system is to prevent unsafe operation of switchgear components.

### **Potential Energy Sources:**

1. 34.5/11.5/4.16 kv cables and equipment.
2. Generators if installed at facilities to provide temporary power during the work.
3. Primary and secondary switch or breaker spring operated mechanisms.
4. Under 600 volt cables and equipment.

### **Tools and PPE:**

Tools: Hand tools, high voltage tester, Multimeter. PPE: Nomex coveralls, Nomex hood, insulating rubber gloves, insulating rubber sleeves, hard hat, safety shoes, work gloves, safety glasses, and back brace if required by back injury prevention and control program. The class of rubber gloves and sleeves will depend on the exposure voltage as per the following: Class 0 - up to 1,000 volts, Class 1 - up to 7,500 volts, Class 2 - up to 17,000 volts, Class 3 - up to 26,500 volts, Class 4 - up to 36,000 volts.

### **References:**

1. PWC Occupational Safety and Health Program Manual, PWCNORVAINST 5100.33E
2. Occupational Safety and Health Standards for General Industry (29 CFR PART 1910): Subpart I, Personnel Protective Equipment;  
Subpart R, Electrical Power Generation / Transmission / Distribution;  
Subpart S, Electrical
3. NFPA 70 E approach distances to exposed, energized, electrical conductors and circuit parts.
4. SOP WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)
5. SOP WC 622 HVE 007, Switchout And Switchback Energized Circuit

### **Procedures:**

1. WC 622 personnel will deenergize the switchgear per SOPs
  - a) WC 622 HVE 007, Switchout and Switchback Energized Circuit
  - b) WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)WC 622 personnel will ensure that the facility's emergency generator or temporary power generator, if present, is isolated and will not back feed to the switchgear.

2. Using a high voltage tester test the primary equipment to verify it is deenergized. Before the conductors are checked, test the high voltage tester on a known energized circuit to verify the tester is working. Test each deenergized conductor

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separately, taking care not to cross phase during test. If voltage is detected, stop the test and (a) notify WC 622 personnel that the circuit is still energized, (b) wait for WC 622 personnel to correct the problem, (c) perform the deenergization verification test once again after WC 622 personnel finish switching operations and declare the equipment deenergized. If no voltage is indicated, retest the high voltage tester to re-verify it is working properly. Wear Nomex coveralls, Nomex hood, safety glasses, safety shoes, insulating rubber gloves and sleeves, and hard hat while testing.

After the high voltage equipment is tested, check the secondary equipment for voltage using a Multimeter. If the is voltage detected follow same procedure as when the high voltage equipment indicates voltage.

3. The required PPE for the work includes work gloves, safety shoes, and safety glasses.

4. Discharge all breaker or switch stored energy devices where the interlock system components will be installed.

5. Install or replace the interlock system.

6. WC 622 personnel will energize the switchgear per SOPs  
a) WC 622 HVE 007, Switchout and Switchback Energized  
Circuit

b) WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)  
WC 622 will ensure all discharged devices are charged and  
operating.

END