

DISCLAIMER: These Standard Operating Procedures (SOP's) are for the exclusive use of Navy Public Works Center (PWC) Norfolk. They are promulgated as guidance for their NAVFAC Commands. If intended to be used by other activities, they must be tailored to each activity's particular requirements and must be reviewed/approved by the activity's safety professionals prior to use.

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

STANDARD OPERATING PROCEDURE / JOB HAZARD ANALYSIS

TITLE
PM 11.5/4.16 KV AIR CIRCUIT BREAKER

PROCEDURE NUMBER
WC 624 HVE 073

SIGNED: _____
(DATE)

APPROVED: _____
(DATE)

SAFETY
PROFESSIONAL: _____
(DATE)

MANAGEMENT
OFFICIAL: _____
(DATE)

A

REVISION

PM 11.5/4.16 KV AIR CIRCUIT BREAKER

Purpose:

Procedure to perform preventative maintenance on an 11.5/4.16 kv, drawout, air, circuit breaker.

Potential Energy Sources:

1. Primary cables
2. Primary bus
3. Breaker control circuits

Tools and PPE:

Tools: Hand tools, Meggar, Micro-Ohm meter. PPE: Safety shoes, work gloves, safety glasses, and back brace if required by back injury prevention and control program.

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
6. SOP WC 624 HVE 062, Clean, Repair, Replace Insulating Barrier Boards.
7. Individual Breaker Manufacture's Instruction Book
8. NFPA 70B, Electrical Equipment Maintenance, 1990 Edition

Procedures:

1. There are two scenarios for the PM work.
 - a) The breaker will be worked on an individual basis with the rest of the substation still energized. In this case operations personnel will open the breaker, if not already open, per SOP 600 HVE #6, PWC Switching or Breaker Operation. Operations personnel will roll the breaker off it's stabs as well.
 - b) The breaker will be worked as part of a total or partial substation PM outage. In this case the breaker will be deenergized per SOPs
WC 622 HVE 007, Switchout And Switchback Energized Circuit
WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)
2. The required PPE for the PM work will be
 - a) Work gloves, safety shoes, safety glasses, for all work except electrical tests.
 - b) Insulating rubber gloves, hard hat, safety shoes, safety glasses, and Nomex coveralls while performing electrical tests.
3. Remove the breaker from the cubicle.
 - a) Roll breaker cart in place and secure to the cabinet.
 - b) Roll breaker onto the cart and lock down.

PM 11.5/4.16 KV AIR CIRCUIT BREAKER

- c) Release the cart lock and roll breaker away from the cubicle.
 - d) If the PM scenario is 1a then close the cubicle door and place a lock on the door to prevent entry into cube while breaker is away. There is no need to place a tag on the cubicle door.
4. Take the barrier boards and arc chutes off.
5. Perform preventative maintenance on the breaker.
- a) Ensure the breaker's instruction book is on site.
 - b) Follow task list of PM work order. Refer to manufacture's instruction book for details.
 - c) Refer to attached table for Meggar test information
6. Place breaker back in cubicle.
- a) If the PM scenario is 1a then close the cubicle door and remove the lock placed on the door to prevent entry into cube while breaker was away.
 - b) Roll breaker cart in place and secure to the cabinet.
 - b) Unlock the breaker and roll it into the cube.
 - c) Release the cart lock and roll it away from the cubicle.
7. Based on the PM scenario, 1a or 1b, operations personnel will do the following:
- a) Scenario 1a - Operations personnel will roll the breaker back onto its stabs and will close the breaker, unless it remains open, per SOP 600 HVE #6, PWC Switching or Breaker Operation.
 - b) Scenario 1b - The breaker will be rolled back onto it's stabs and closed, unless it is to remain open, as part of the overall substation PM switching. Operations personnel will follow the following SOPs:
 WC 622 HVE 007, Switchout And Switchback Energized Circuit
 WC 622 HVE 013, Hazardous Energy Control(Lockout, Tagout)

END