

Vacuum Group Procedure VA-008.18.1.27
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Revision 01

****IMPORTANT****

PRIOR TO THE PERFORMANCE OF ANY WORK WITHIN THE SCOPE OF THIS PROCEDURE, IT IS THE RESPONSIBILITY OF THE SUPERVISOR TO ENSURE THAT ***WORK PLANNING*** HAS BEEN REVIEWED FOR THE PROTECTION OF WORKERS, EQUIPMENT, AND THE ENVIRONMENT.

1.0 PURPOSE:

1.1 TO PROVIDE AN EFFECTIVE PROCEDURE FOR AGS VACUUM TECHNICIANS TO

2.0 RESPONSIBILITIES:

2.1 THE AGS VACUUM SUPERVISOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THIS PROCEDURE

3.0 PROCEDURE

3.1 ION PUMP POWER

SUPPLIES (IPPS) VACUUM SPUTTER ION PUMPS LOCATED WITHIN THE AGS AND HEBT USE OPERATING VOLTAGES IN EXCESS OF 5 X.V. D.C.

WARNING:

AFTER AN IPPS IS SHUT OFF, ITS OUTPUT VOLTAGE HAS DECAY TIME OF 60 SECONDS.

3.2 IPPS VACUUM SECTOR HV. LOCKOUT

BEFORE WORK IS PERFORMED ON VACUUM EQUIPMENT WITHIN A VACUUM SECTOR, INCLUDING SEALS, VACUUM CHAMBERS, ION PUMPS, HIGH VOLTAGE CABLES AND CONNECTORS, HIGH VOLTAGE JUNCTION BOXES, ECT, THE 120 V.AC. POWER TO THE HIGH VOLTAGE SECTION OF THE IPPS, WHICH IS LOCATED IN THE EQUIPMENT HOUSES, IS TO BE TURNED OFF AND LOCKED OUT. 120 V.AC. POWER TO THE SECTOR EQUIPMENT RACK IS TO BE TURNED OFF.

NOTE:

THAT THE ION PUMPS FALL INTO CLASS "C" (HAZARDOUS OPERATION) OF 1.5.0 AND THE FOLLOWING LOCK OUT AND TAG OUT PROCEDURES MUST BE FOLLOWED.

- 1) LOCATE THE PROPER SECTOR TO BE LOCKED OUT.
- 2) TURN ALL POWER SUPPLIES TO LOCAL CONTROL (LEAVE ALL IPPS "ON" AT THIS TIME)
- 3) LOCATE HIGH VOLTAGE AC. DISCONNECT SWITCH FOR THE SECTOR TO BE LOCKED OUT.
- 4) MOVE DISCONNECT LEVER TO THE OFF (DOWN) POSITION
- 5) WAIT AT LEAST 60 SECONDS FOR VOLTAGE TO BLEED OFF
- 6) OBSERVE THAT ALL IPPS "ON" LIGHTS EXTINGUISH.
- 7) TURN KIRK KEY TO THE LOCKED POSITION AND REMOVE KEY.
- 8) NOTE THE COLOR CODE OF THE KEY. ONLY ION PUMP CABLES WITH THE SAME COLOR CODE AS THAT OF THE KIRK KEY (REMOVED) CAN BE CONSIDERED DE-ENERGIZED.
- 9) PLACE RED HOLD TAG ON THE FOR THE SECTOR IPPS AC.

DISCONNECT SWITCH.

- 10) LOCATE AND TURN OFF CONTROL POWER BREAKER FOR SECTOR EQUIPMENT RACK
- 11) AT THE REAR OF THE SECTOR EQUIPMENT RACK, VERIFY WITH A WIGGY THAT VOLTAGE IS "OFF" ON THE AC. TERMINAL STRIPS THAT FEED THE H.V. SECTION OF THE IPPS, AND THE AC. DISTRIBUTION STRIPS THAT FEED CONTROL POWER TO THE IPPS.
- 12) LOCATE EQUIPMENT TO BE WORKED ON WITHIN THE VACUUM SECTOR AND VERIFY THAT THE ION PUMP CABLES CARRY THE PROPER COLOR CODE.
- 13) IF A H.V. CONNECTOR IS TO BE REMOVED FROM AN ION PUMP WITHIN THE H.V. LOCKED OUT SECTOR, THE CABLE AND CONNECTOR SHOULD BE PROPERLY DISCHARGED USING A RESISTIVE TYPE GROUND STICK.

3.3 TO RESTORE POWER TO THE ION PUMPS

- 1) VERIFY THAT ALL H.V. CONNECTORS ARE INSTALLED ON THEIR RESPECTIVE ION PUMPS.
- 2) NOTIFY ALL AFFECTED PERSONNEL THAT HV. IS TO BE RESTORED ON THE
- 3) ION PUMPS
- 4) TURN ON AC. BREAKER FOR CONTROL POWER TO THE RACK.
- 5) DEPRESS THE "OFF" PUSHBUTTON FOR EACH IPPS (FRONT PANEL)
- 6) REMOVE THE LOCKOUT TAG.
- 7) REPLACE THE KIRK KEY
- 8) TURN ON THE HIGH VOLTAGE DISCONNECT SWITCH
- 9) TURN ON SUPPLIES
- 10) PLACE ALL IPPS IN THE "REMOTE" STATE (ONLY THOSE THAT WERE ORIGINALLY IN THE REMOTE STATE)