ISOLATING PROCEDURE FOR A TYPICAL MEDIUM-VOLTAGE GAS SWITCH WITH DEAD-BREAK ELBOWS

This is an isolating procedure for a typical, medium-voltage, gas, three-switch assembly, connected with dead-break elbows, where one switch acts as an incoming source to a common bus from which the other two switches feed circuits leaving the switch assembly. This procedure should be performed by a minimum crew of two qualified electricians.

1. If unfamiliar with the particular make and model of switch, obtain and review the manufacturer's instructions on the switch assembly.
2. Obtain and review the manufacturer's instructions related to the dead-break elbows.
3. Review the facility's one-line diagram to understand the interconnection of the facility's electrical distribution system and identify the points of protection and/or isolation for the switch assembly. Determine which areas of the facility will lose power as you open each circuit. Determine appropriate methods of back feeding equipment, if necessary.
4. Review the facility's arc flash study to determine the proper level of arc flash protection required.
5. Suit up in the appropriate FR apparel and voltage-rated PPE.
6. Starting with the circuit that feeds the switch assembly, open, lock out, and ground all circuits feeding into and/or out of the switch assembly from the nearest points of protection/isolation. (If the upstream or downstream point of protection is a non-load break device, you may open the appropriate switch in the switch assembly before opening the point of protection.) Before grounding each circuit, test the cables with a voltage-rated contact voltmeter, using the live-dead-live method to verify the voltmeter operation and that the circuit is dead. If any unexpected facility outages occur during this switching procedure, stop and go back to step 3. If the voltmeter indicates the presence of voltage where there should be none, stop and go back to step 3.
7. Open all switches in the switch assembly. Many times, the clearances are so close that it is unsafe and unwise to work on one set of cables with neighboring sets still energized. Again, if any unexpected facility outages occur during this switching, stop and go back to step 3.
8. Check the switch assembly and the dead-break elbows for the presence of voltage using the live-dead-live method with a non-contact voltage-rated sensing instrument, such as a Salisbury Model 4244 AC Voltage Detector, set to a low voltage range, or a capacitive voltmeter approved by the dead-break elbow manufacturer. If the voltage sensor indicates the presence of voltage, stop and go back to step 3. If there is no indication of voltage, disconnect the dead-break elbows from the switch assembly using a hot stick with an elbow-pulling attachment.
9. With the dead-break elbows disconnected and the pins exposed, re-check the conductors with a voltage-rated contact voltmeter. If voltage is present on the

disconnected cable(s), carefully set the dead-break elbow(s) back into their positions on the switch and go back to step 3. If no voltage is present, verify that the conductors are indeed grounded. If any of the conductors are not grounded, recheck the grounds placed in step 6. If that does not result in all conductors at the switch being grounded, stop and go back to step 3.

10. Verify that the switch assembly bus is de-energized by inserting a special test elbow, closing a switch, and using a voltage-rated contact voltmeter. Again, if voltage is present, stop and go back to step 3. If no voltage is present, a set of three test/grounding elbows may be inserted to ground the switch assembly bus, if it is to be worked on.
11. You may then remove your FR apparel and voltage-rated PPE when all conductors have been verified de-energized and grounded, and proceed with the work on the switch assembly and/or cables.