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How to recover the Anode, Cathode, and GG after a Gas Alarm

Bad weather can cause the TPC gas system to hiccup, or fail. If the gas alarm stays on continuously, silence the alarm and call an expert. If the gas system hiccups (briefly sounding the alarm) and then recovers, you may proceed with normal operations just as soon as you are satisfied that you have full control of the TPC electronic systems. For example, a brief gas alarm may not interfere with the TPC control systems at all. This is good, and you can proceed with normal operations. However, some hiccups will also cause the TPC interlocks to fail and then you will lose control of the Anodes, Cathodes and Gating Grids. If this happens, try to recover them using the following steps:

0.) You can determine if the interlocks have failed by examining the 'Interlocks' screen at the TPC control console (usually desktop #7). If any of the buttons on the bottom row are red, then you will be prevented from using the TPC control systems.

1.) Walk to the gas room and inspect the Allen Bradley Interlock panel. If the top row is all green, then trained detector operators may push the bottom row of buttons to re-enable each channel that was switched off.

2.) Return to the control room. Turn off the GG. Ramp the Cathode to zero. Ramp the anodes to zero. Do this even if the displays are showing yellow screens or other apparent anomalies.

3.) Anode: Push the 'Reset Program' on the Anode Auto Ramp control box. Push the 'Off' button and wait a minute for the voltages to return to zero. Push the 'Pedestal' button to confirm that the supply is acting normally. Wait for the pedestal voltages to stabilize then turn the voltages off again. This may take a several minutes to complete.

4.) Cathode: Find the green 'HV' button on the image of the Glassman High voltage supply. It is above the yellow square that indicates 'AC ON'. Push and hold the 'HV' button for several seconds. The green dot for 'OFF' will shift to the other side of the button and turn red. The Cathode HV is now enabled. Go to the Cathode Control box. Push the 'RESET' button on the Cathode Control. Push the 'OFF' button and wait for the voltage to return to zero. Push the 'ON' button and wait for the voltage to start increasing to confirm that the supply is acting normally. Do not allow it to ramp to full voltage. Instead, push the 'STOP' button after about 1 minute and then hit the 'OFF' button.

5.) Gated Grid: One or both of the two VME crates for the GG are off. Turn them back on. You can do this at the Slow Controls Alarm Handler. Look for the VME pull-down menu, and select the Platform VME 2nd floor pull-down menu, and check GG crates 53 and 54 by clicking on the 'p' button. Turn on any crate that is off. (Don't forget to hold the 'ON' button down for several seconds or nothing will happen.) Return to the TPC control console and push the 'Grid On' button. Wait a couple minutes to confirm that the GG voltages have been applied and the panels turn green. Leave the GG on.

6.) Pulser: The VME crate for the pulser has been turned off. It is crate #55. Turn it back on. Turn it on by using the slow controls alarm handler interface (see above). (Don't forget to hold the 'ON' button down for several seconds or nothing will happen.)

7.) Wait for further instructions from the shift leader.

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8.) If these instructions fail, call an expert. Of if you are too sleepy to think, call an expert. Sometimes a bad weather event will be accompanied by a power dip and this may cause one or more of the communications networks to fail. If you have been trained and know how to recover the Arcnet, Canbus, etc., then try to do it. If you have been trained and know how to turn on a VME crate that has gone down, then do it. But if you are uncertain about how to recover these systems, then call an expert.