

**OPERATION OF THE PHENIX-MUID PANEL
GAS SYSTEM IN BUILDING 1008
FOR PANEL TESTING**

Text Pages 1 through 3

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>

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REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	CURRENT OVERSIGHT
A	First Issue	7/10/1998	n/a	K. Read, W. McCabe, A. Etkin	n/a
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1.0 Purpose and Scope

This procedure provides instruction for starting up and shutting down of the gas system for testing a PHENIX-MUID panel in building 1008. It specifies which procedure can or can not be performed in unattended mode.

2.0 Responsibilities

- 2.1 Operator is responsible for conducting the procedures and logging of the gas and the high voltage operation.

3.0 Prerequisites

- 3.1 Operator shall have completed BNL compressed gas and electrical safety training.
- 3.2 Operator shall be designated as being cognizant of proper operating practices by the technical supervisor.
- 3.3 The safety bubblers shall be visually inspected before starting gas flow.
- 3.4 The relief valve in the system shall be certified by S&EP for its proper relief pressure.
- 3.5 The CO2 bottle cart shall be secured with a chain so that it can not fall over.
- 3.6 An area surrounding the measurement and gas supply equipment shall be labelled as "authorized MuID test personnel only" with appropriate telephone extensions listed.
- 3.7 Prerequisites 3.1 to 3.10 of PHENIX procedure PP-2.5.2.13-07 "Operation of the PHENIX MuID Panel High Voltage System in Building 1008 for Panel Testing" shall be satisfied.

4.0 Precautions

- 4.1 All of the high voltage supplies shall be turned off prior to plugging or unplugging high voltage cables.
- 4.2 All connections to the panel shall be made by personnel trained to work on the MuID steel.

5.0 Procedure

- 5.1 Confirm that the prerequisites indicated above are satisfied, especially noting 3.3, 3.6, and 3.7.
- 5.2 Fill the tubes with CO2 for leak test of panel gas circuits.
 - 5.2.1 Operator shall switch the gas circuit-return valves to direct flow to the bubblers.
 - 5.2.2 Operator shall verify that all flow meters are closed.
 - 5.2.3 Operator shall open the valve on the CO2 bottle.
 - 5.2.4 Operator shall set the CO2 regulator output gauge to 10 PSI.
 - 5.2.5 Operator shall open the appropriate input flow meters for the selected set of

gas circuits to 400 cc/min.

- 5.2.6 Operator shall switch the gas circuit-return valves to direct flow to the appropriate manometers.
- 5.2.7 Operator shall verify pressure increase on all selected manometers.
- 5.2.8 Operator shall take the following steps to pressurize all selected manometers when pressure increase is not verified on some of the manometers.
 - 5.2.8.1 Operator shall open the valve on the input flow meter for the problem chain. If it does not show any flow, operator shall give a tap on the bottom of the flow meter to let the float show the proper flow rate.
 - 5.2.8.2 Operator shall set the gas circuit -return valve for the problem gas circuit to the manometer.
 - 5.2.8.3 If both operations do not fix the problem, operator shall tighten connections at the gas rack and request that all connections at the exterior of the panel bulkhead be tightened by a technician authorized to work on the MuID steel. Operator shall repeat the procedure 5.1.7.1 and 5.1.7.2.
- 5.2.9 Once the pressure reaches 10 cm H₂O, operator shall close all of the input flowmeters and allow a hold time of 3 hours to elapse.
- 5.2.10 Operator shall close the valve on the CO₂ bottle.
- Note: For the remaining duration of the leak test (hold time) attended mode shall not be required .**
- 5.2.11 At the end of the hold time, operator shall record the manometer reading.
- 5.2.12 Operator shall set the gas circuit-return valves to vent.

5.2 Flush the tubes with CO₂

Note: Attended mode shall not be required for this procedure.

- 5.2.1 Operator shall follow steps 5.1.1 – 5.1.4 to commence flowing CO₂.
- 5.2.2 Operator shall switch the gas circuit-return valves to direct flow to the appropriate bubblers for venting.
- 5.2.3 After 12 hours of gas flushing, operator shall close the master inlet knob.
- 5.2.4 Operator shall close the valve on the CO₂ bottle.
- 5.2.5 Operator shall close the valves on the input flow meters.
- 5.2.6 Operator shall set the gas-circuit return valves to “closed position.”

5.3 Bottle change procedure

- 5.3.1 Operator shall close the valve on the gas bottle.
- 5.3.2 Operator shall close the regulator output valve.
- 5.3.3 Operator shall set all gas circuit return valves to the vent position.
- 5.3.4 Operator shall close all flow meter valves.

- 5.3.5 Operator shall disconnect the regulator from the gas bottle to be exchanged (empty bottle).
- 5.3.6 Operator shall put the original bottle cap on the empty bottle.
- 5.3.7 Operator shall label the empty bottle "Empty".
- 5.3.8 Operator shall carry in a new bottle with a bottle cap on a gas bottle carrier.
- 5.3.9 Operator shall exchange the bottles.
- 5.3.10 Operator shall secure the bottle with a chain on the portable bottle stand.
- 5.3.11 Operator shall take off the bottle cap from the new bottle and save it.
- 5.3.12 Operator shall attach the regulator on the new gas bottle.
- 5.3.13 Operator shall open the valve on the bottle slightly and check to see if there is any leak at the regulator joint (by using snoop). In case of leak, operator shall fix the leak by tightening the regulator onto the bottle.
- 5.3.14 Operator shall close the valve on the new bottle.
- 5.3.15 Operator shall label the new bottle "In Use".
- 5.3.16 Operator shall carry out the empty bottle on a gas bottle carrier to store it in the empty bottle storage.

5.4 Shutdown procedure

- 5.4.1 Operator shall close the valve on the gas bottle.
- 5.4.2 Operator shall close all flowmeter valves all the way.
- 5.4.3 Operator shall set all 12 gas-circuit return valves to vent position.

6.0 Documentation

- 6.1 Documentation shall be kept in the System Operator's Notebook in Building 905.

7.0 References

- 7.1 All the PHENIX MUID construction procedure documents can be found through PHENIX MUID Factory WEB page <http://riksg01.rhic.bnl.gov/muid/>. A hardcopy of those documents are also kept in the specific work areas in building 905.