



ZDC IN THE PEH FOR THE ENGINEERING RUN

procedure name

PHENIX Procedure No. PP-2.5.2.2-02

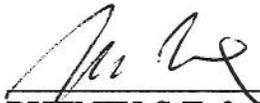
Revision: A

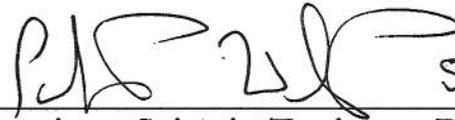
Date: 5-11-99

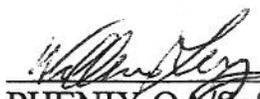
Hand Processed Changes

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

Approvals

 5/11/99
 PHENIX S E & T Date

 5/10/99
 Cognizant Scientist/Engineer Date
 /Activity Manager

 5/12/99
 PHENIX QA/Safety Date

 RHIC ES&H Date

REVISION CONTROL SHEET

LETTER	DESCRIPTION	DATE	WRITTEN BY	APPROVED BY	TYPED BY
A	First Issue	5/11/99	W. Stokes	W. Lenz, Other signatures illegible	n/a
RETIRED	This procedure is no longer relevant to PHENIX operations	2/13/2007	(Retirement note written by. D.Lynch)	Retirement approved by D. Lynch, R. Pisani and P. Giannotti for the PHENIX experiment	n/a

ZDC in the PEH for the Engineering Run on 1999

1.0 Purpose

The purpose of this document is to define the plan for operation of the PHENIX ZDC subsystem in the PEH(PHENIX Experimental Hall) during the Engineering run of 1999.

This plan will ensure:

- A. the safety of all personnel from risks associated with the operation of the high voltage systems required to power ZDC photomultiplier tubes,
- B. the implementation of the appropriate emergency approaches,
- C. prompt notification of the appropriate RHIC and S&EP specialists,
- D. the maintenance of appropriate RHIC emergency status,
- E. the preservation and protection of the environment, and
- F. the preservation of BNL facilities and equipment.

2.0 Responsibilities

During the Engineering Run, there will be two levels of responsibility for the oversight of the ZDC subsystem.

The first level of responsibility will be the PHENIX Shift Crew. Prior to data taking, there will be a period of ZDC commissioning when ZDC is tested at high voltage before the IR is closed and the ZDC racks are inaccessible. During the commissioning phase the BBC HV&LV systems will be monitored by the team of ZDC Experts every eight hours, at 8:00, 16:00 and 24:00. A record of the performance of the ZDC system will be kept by the BBC Experts.

During data taking, it will be the responsibility of the PHENIX Shift Crew to:

- 2.1 monitor the status and alarms for the ZDC HV system according to a prescribed check off list at least once a shift(eight hours)
- 2.1 In the event of an alarm or irregularity, contact an expert from the Expert Call List given in Appendix A.

The second level of responsibility is the ZDC Experts. It is the responsibility of the ZDC Experts to:

- 2.2 maintain the ZDC subsystem in a safe operating condition. This includes:
 - 2.2.1 setting, adjusting, and checking the HV&LV power supplies,

- 2.2.2 position any special instructions or notifications as required, and carrying out any emergency action, as prescribed in the Procedures section of this document.

3.0 Prerequisites

The ZDC Experts shall have read or have training in the following areas:

- 3.1 RHIC Project Local Emergency Plan, RHIC-OPM 3.0,
- 3.2 RHIC Access & PHENIX IR Access Training,
- 3.3 BNL Radworker I & TLD,
- 3.4 BNL Electrical Safety I,
- 3.5 BNL Lock Out/Tag Out Authorized Training,
- 3.6 PHENIX ZDC subsystem specific training,
- 3.7 Geographical layout of the experimental area (routes of egress, location of emergency equipment, phones and controls)

The ZDC Experts shall train all personnel involved in the ZDC running in the safe operation of the ZDC HV&LV systems.

4.0 Precautions

The safety of personnel is of primary importance. The ZDC Experts and Shift Crew members shall take great care to ensure that the ZDC subsystem will be operated in a way that does not place personnel at risk of physical harm.

4.1 HV system precautions

The HV power supplies are current limited at less than 12 milliamp per channel.

4.2 LV system precautions

BBC utilizes high current low voltage (+/- 6V) power supplies to provide power required by FEM crates to operate. This power is delivered from the LV power supply rack to the detector and distributed among the crates via fuse-protected terminal blocks installed on the DIN-rails inside sector enclosure. Because the voltage is low, LV wires may stay energized while doors are open to allow test-work on FEM crates.

5.0 Emergency Procedures

- 5.1 In the event of a fire or fire alarm in Building 1008, members of the PHENIX Shift Crew shall (in order of priority)

- 5.1.1 Pull the nearest fire alarm if the alarm is not alert,
- 5.1.2 The 1008 fire safety system is interlocked with the HV and LV power supplies. Activation of the fire alarm automatically shuts down the power to all high voltage (HV) and low voltage (LV) supplies,
- 5.1.3 Go to a safe location and call 2222 or 911.
- 5.1.4 Notify the ZDC Expert On Call that an emergency affecting the ZDC system has occurred
- 5.1.5 Await the arrival of the Fire/Rescue Group. If the fire is small, the Shift Crewmember may return to the area and attempt to extinguish the fire using a fire extinguisher.
- 5.1.6 The shift leader shall report to the Fire/Rescue Captain upon arrival at the Command Post.

6.0 Standard Operating Procedures

6.1 HV system Procedures: In normal operations the experimental hall will be closed to personnel making access to any HV point impossible. Under such conditions, follow this procedure for turning on the HV:

- 6.1.1 Check that the appropriate current limits are in place for the power supply. Each subsystem shall maintain a HV logbook where the operating parameters of the HV settings are recorded. This shall include the current limits, target voltages, ramp rates, operating voltages and currents, and trip tolerances.
- 6.1.2 Check that the target voltage for each HV output line is appropriate (<200 volts). The first stage of bringing on the HV shall be a single increment in the ramp up. This is because the current trips are disabled during ramping, and in order to locate a short in the system, it is necessary to halt the ramping and check the current at the earliest possible stage.
- 6.1.3 Check that the ramp up rate for each HV supply is appropriate (<400 volts per step).
- 6.1.4 Begin ramping up the HV.
- 6.1.5 If any of the HV supplies trips, disable that channel until the reason for the trip is understood. Then begin the procedure again from 6.1.5

- 6.1.6 If there are no HV trips, verify that the operating currents are appropriate.
 - 6.1.7 Change the target voltage to the correct operating voltage for each channel, as given in the operating log for each channel.
 - 6.1.8 Continue ramping up the HV.
 - 6.1.9 When ramping is complete, verify that the operating currents are appropriate, as given in the operating log for each channel.
 - 6.1.10 HV is ready for ZDC testing.
- 6.2 HV system Procedures: Turning off high voltage to ZDC phototubes
- 6.2.1 Begin ramping down the HV.
 - 6.2.2 Verify by the read back that the HV is off the system.

7.0 Documentation

- 7.1 None

8.0 References

- 8.1 RHIC-OPM 3.0, "Local Emergency Plan for the Relativistic Heavy Ion Collider Project."
- 8.2 BNL ES&H Health Standard, December 18, 1991.
- 8.3 BNL Occupational Health and Safety Guide (interm).

Appendix

Call list for the ZDC subsystem experts

Sebastian White	x5488
Alexei Denisov	x4233, x3310
Hiroaki Ohnishi	x4999

Attachment – layout of the 1008A building showing:

- ZDC subsystem location
- Fire alarms
- Telephones

ω

19.5913 [.4976]

757.5490 [19.2417]

597.8070 [15.1843]

579.8071 [14.7271]

DX

339.1493 [8.6144]

335.3107 [8.5169]

320.3107 [8.1359]

304.9357 [7.7454]

291.8157 [7.4121]

.0000 [0.0000]

IP08

