8.1.1.10 TEST OF SAFETY INTERLOCKS OF TRIM POWER SUPPLIES FOR HORIZONTAL MAGNET TESTING

Text Pages 1 through 5
Attachments 1, 2

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials

Revision No. 0 Approved:

_____ _____

RHIC Project Head Date

8.1.1.10 Test of Safety Interlocks of Trim Power Supplies for Horizontal Magnet Testing

1.0 Purpose and Scope

1.1 The purpose of this Procedure is to provide step by step instruction in testing the electrical door interlocks and warning lights associated with the Horizontal Test Facility Trim Power Supplies (Supplies). The Supplies are located on the upper level of the 902 high bay, above the dipole calibration magnets.

2.0 Responsibilities

2.1 The Cognizant Engineer for the Trim Power Supplies, or the Electrical Systems Section Head, shall:

A. designate those persons authorized to perform the procedure;

B. establish and maintain a list of authorized persons;

C. appoint a Cognizant Technician for the interlock test database;

D. review the completed "Check List for Safety Interlock Test" (Attachment 1) and sign the "Interlock Test Approval Form" (Attachment 2).

2.2 The Cognizant Technician shall:

A. initiate the procedure, when required;

B. establish and maintain a paper database for the interlock test;

C. arrange for the "Interlock Test Approval Form" to be posted at the required locations.

2.3 The Authorized Person shall:

A. perform the main actions of the procedure;

B. complete the "Check List for Safety Interlock Test".

2.4 The Magnet Test Operator shall perform those actions involving remote operation of the Supplies.

3.0 Prerequisites

3.1 The Authorized Person shall:

A. be trained by the Cognizant Engineer;

B. be trained as a "Responsible Employee", as per SEAPPM 1.5.1, "Lockout/Tagout Requirements".

3.2 The Magnet Test Operator shall be an authorized control room operator for the Horizontal Test Facility.

4.0 Precautions

The Supplies should be in a "short" condition when testing the interlocks. Otherwise, damage to product or equipment could result.

5.0 Procedure

NOTE 1 ***The test should be performed every six months.***

NOTE 2 ***If a device fails, stop work and immediately notify the Cognizant Engineer and the ES&H Coordinator.***

5.1 Configure the Supplies in a "short" condition as follows:

5.1.1 Lock and tag the three input disconnect switches on TPS racks 1, 2, and 3.

5.1.2 Short the output leads of TPS1 using a wire nut. Place a rubber boot over the connection.

5.1.3 Repeat for TPS2 and TPS3.

5.1.4 Remove locks and tags.

5.2 Verify that the following initial conditions are true:

1. Controls on each of the three chassis labeled "REGULATOR CHASSIS" as follows:

A. PARK toggle switch in the ON position

B. REMOTE/LOCAL toggle switch in the REMOTE POSITION.

C. PS switch in the OFF position.

D. TIME CONSTANT toggle switch in the RESISTIVE position.

Do not change the potentiometer settings.

2. Doors at the back of the TPS racks closed.

3. Input disconnect switches on the TPS racks in the OFF position.

5.3 Activate power to the data acquisition/control rack. This rack is located to the left of the TPS racks.

5.4 Start the control software on the computer adjacent to the data acquisition/control rack. Start the control software on the computer in the Horizontal Control Room. Verify that communication is established with the remote data acquisition/control rack.

5.5 Start Supplies as follows:

<u>At the Supplies</u>:

5.5.1 Plug in the 208V power cords of the three Supplies.

5.5.2 Place the three input disconnect switches in the ON position.

5.5.3 If the POWER switches on the front panels of the Supplies are in the OFF position, then place them in the ON position.

<u>In the HCR</u>:

5.5.4 Set the Quench Detectors to the highest value by performing the following steps:

1. Place the toggle switch in the SET position.

2. Turn the potentiometer to the highest value.

3. Place the toggle switch in the NULL position.

4. Repeat for all Quench Detectors.

5.5.5 Reset faults through computer command.

5.5.6 Turn on Supplies through computer command.

5.6 Verify that the three warning light, located on the three TPS racks, are flashing.

5.7 Ramp Supplies to 5 amps.

5.8 Open door in back of TPS rack #1.

5.9 Verify that the following occurs:

1. Control computer indicates a "fault".

2. Supplies shut down and all DC voltage and current indicators go to zero.

5.10 Close door.

5.11 Reset fault through computer command.

5.12 Repeat steps 5.7 to 5.11 for the door interlock on TPS rack #2 and TPS rack #3.

5.13 Complete, date, and sign the Check List.

▸*Cognizant Engineer:*

5.14 Review the Check List and, if approved, sign the "Interlock Test Approval" form (Attachment 2).

▸*Cognizant Technician:*

5.15 Post a copy of the signed "Interlock Test Approval" form on the Remote Control Racks.

5.16 File one copy of the Check List and one copy of the Approval Form.

6.0 Documentation

6.1 Check List for Test of Safety Interlocks.

6.2 Interlock Test Approval Form

7.0 References

7.1 SEAPPM 1.5.1, "Lockout/Tagout Requirements".

8.0 Attachments

1. Check List for Test of Safety Interlocks

2. Interlock Test Approval Form

Attachment 1

Check List for Test of Safety Interlocks

Trim Power Supplies of Horizontal Test Facility

DESIGNATION	DESCRIPTION	✓
TPS DIL-1	Door Interlock on TPS Rack #1	
TPS DIL-2	Door Interlock on TPS Rack #2	
TPS DIL-3	Door Interlock on TPS Rack #3	
TPS WL-1	Warning light in TPS rack #1	
TPS WL-2	Warning light in TPS rack #2	
TPS WL-3	Warning light in TPS rack #3	

Test date _____ Tested by_____ Life#_____

Tested by_____ Life#_____

Notes:

Attachment 2

Interlock Test Approval Form

Safety Interlock Test Approval

The safety interlocks of the HTF Trim Power Supply System have been tested and approved

Approval Date_____

The approval is valid until the expiration date shown. DO NOT OPERATE THE HTF TRIM POWER SUPPLIES AFTER THE EXPIRATION DATE.

Expiration Date_____

Approval Signature (CE or ESSH) _____

Post on TPS Remote Control Rack

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File Copy

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