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C-A OPERATIONS PROCEDURES MANUAL

11.4.6 Procedure for Bypassing the STAR Safety Interlock Systems

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Collider-Accelerator Department Chairman Date

W. Meng

11.4.6 Procedure for Bypassing the STAR Safety Interlock Systems

1. Purpose

- 1.1 The scope of this procedure is those safeguards and operations that are necessary if one wishes to implement a Bypass for one of the STAR Equipment Safety Interlock Systems.

2. Responsibilities

- 2.1 STAR Shift Leaders.

3. Prerequisites

- 3.1 In order to implement a Bypass for any of the STAR Equipment Safety Systems, the following requirements must be met:
 - 3.1.1 C-A User training
 - 3.1.2 STAR Equipment Safety System Bypass Authorization. (See Attachments 8.1 and 8.2)
- 3.2 All personnel working on any electrical system or equipment in the C-AD shall be familiar with BNL [SBMS Electrical Safety](#), BNL [SBMS Lockout/Tagout \(LO/TO\)](#), [C-A-OPM 1.5, "Electrical Safety Implementation Plan"](#), [C-A-OPM 1.5.3 "Procedure to Open or Close Breakers and Switches and Connecting/Disconnecting Plugs"](#), [C-A-OPM 2.36, "Lockout/Tagout for Control of Hazardous Energy"](#). C-AD will provide on-site/work specific training to individuals in the electrical safety aspects of their job functions and assignments.

4. Precautions

- 4.1 The STAR detector system has a number of interlock systems for equipment protection. The global interlock system is known as the STAR Global Interlock System (SGIS). Many of the detector sub systems in STAR have their own equipment protection interlock systems. One notable example of these sub system interlock systems is that associated with the Time Projection Chamber (TPC).
- 4.2 A common trait of these systems is that they have been designed to monitor various input signals from in and around the detector and the STAR facility. If they detect a possible problem they take action to place the appropriate part or parts of the detector in a safe state, without any human intervention or action necessary. Given this important role, bypassing any of the functions of these systems must be done in a careful, considered fashion, by an individual with sufficient knowledge of the particular interlock system. An individual needs authorization to implement an interlock system bypass.

5. **Procedure**

5.1 **SGIS System**

Bypasses may only be implemented or authorized for the SGIS system, on a case-by-case basis, by one of the individuals listed in Attachment 8.1.

There are a specific number of bypasses associated with the SGIS system which require the notification and consent of the C-A Operations Coordinator (x4662). If C-A Main Control Room is not staffed, contact C-A ES&F Division, A. Pendzick (x4718). These bypasses which require the notification and consent of the C-A Operations Coordinator are:

- To bypass any of the smoke detector signals
- To Bypass the STAR detector based flammable gas detector signal
- To Bypass the shunt trip of the 480 VAC Detector “dirty” power circuit breaker
- To Bypass the shunt trip of the 480 VAC Detector “clean” power circuit breaker
- To take the SGIS system out of running mode

All changes, alarms, and incidents concerning the SGIS system must be logged in the Log book which is attached to the main SGIS rack in the STAR DAQ room.

5.2 **TPC System**

Bypasses may only be implemented or authorized for the TPC system, on a case-by-case basis, by one of the individuals listed in Attachment 8.2.

6. **Documentation**

The SGIS and TPC safety systems have a document that describes their design and operation.

- 6.1 CSN0361B - Requirements for STAR Global Interlock System.
- 6.2 Allen Bradley Interlock System for the STAR TPC Gas System, Version 2.4, SOP-TPC-GAS-06-A.

7. **References**

- 7.1 [C-A-OPM 1.5, “Electrical Safety Implementation Plan”.](#)
- 7.2 [C-A-OPM 1.5.3 “Procedure to Open or Close Breakers and Switches and Connecting/Disconnecting Plugs”.](#)
- 7.3 [C-A-OPM 2.36, “Lockout/Tagout for Control of Hazardous Energy”.](#)
- 7.4 [SBMS Electrical Safety.](#)
- 7.5 [SBMS Lockout/Tagout \(LOTO\).](#)

8. Attachments

- 8.1 [C-A-OPM-ATT 11.4.6.a “List of Authorized People for the STAR SGIS Interlock System”](#)
- 8.2 [C-A-OPM-ATT 11.4.6.b “List of Authorized People for the STAR TPC Interlock System”](#)