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C-A OPERATIONS PROCEDURES MANUAL

11.4.1 STAR Flammable Gas Procedure

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Hand Processed Changes

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Approved: \_\_\_\_\_ *Signature on File* \_\_\_\_\_  
Collider-Accelerator Department Chairman Date

W. Christie

## 11.4.1 STAR Flammable Gas Procedure

### 1. Purpose

The scope of this procedure is those safeguards and operations that are necessary for turning on flammable gas for a STAR detector gas system.

### 2. Responsibilities

The flammable gas system operator is responsible for seeing that all steps and conditions outlined in this procedure are followed or complied with when introducing flammable gas into the detector.

### 3. Prerequisites

In order to operate any of the STAR flammable gas detection systems, the following requirements must be met:

- 3.1 C-A User training
- 3.2 STAR Gas system authorization. (See [C-A-OPM-ATT 11.4.1.a](#) and [C-A-OPM-ATT 11.4.1.b](#))
- 3.3 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

Before initiating flow of flammable gas, the following precautions must be taken. The checklist for items 4.1 through 4.10 below, available as [C-A-OPM-ATT 11.4.1.c](#), must be filled out by the gas system operator and filed with either the STAR Detector Support group leader, or the STAR Technical Support group leader:

- 4.1 A shift schedule must be in place. For the duration of time that the flammable gas is in the detector system, a manned shift must be in place at the STAR site.
- 4.2 The chamber to receive the flammable gas must have been properly purged.
- 4.3 All high voltage to the subsystem receiving flammable gas must be off.
- 4.4 The flammable gas detection system, which resides on level 2 of the South electronics platform, must be operational.

- 4.5 The STAR Global Interlock System (SGIS) must be operational.
- 4.6 The flammable gas operator must get the approval of the relevant detector subsystem manager. The relevant detector subsystem manager must receive the permission of the STAR Detector Support group leader.
- 4.7 The C-A Operations Coordinator (OC), (x4662), and the MCR Group Leader/Deputy Group Leader, must be informed that flammable gas is about to be introduced into the detector. The MCR Group Leader and Deputy should be informed via email ([ingrassia@bnl.gov](mailto:ingrassia@bnl.gov) and [sampson@bnl.gov](mailto:sampson@bnl.gov)).
- 4.8 The Collider-Accelerator Support (CAS) watch supervisor must be informed that flammable gas is about to be introduced into the detector. This can be accomplished by asking the C-A Operations Coordinator to inform the CAS watch supervisor.
- 4.9 The “Blue sheet” for the SGIS must be currently certified.
- 4.10 A list of experts for the relevant gas system, with phone numbers, must be posted.

## 5. **Procedure**

See the STAR Documented Work Procedure (DWP) for the appropriate subsystem listed in section 6.0.

## 6. **Documentation**

Each subsystem using flammable gas has its own procedure for start up, maintenance, and monitoring.

- 6.1 Operating the TPC Gas System      SOP-TPC-GAS-03-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 11.4.1.a “List of authorized operators for the STAR TPC gas system”.](#)
- 8.2 [C-A-OPM-ATT 11.4.1.c “STAR Flammable Gas Procedure Checklist”.](#)