

ACCELERATOR DIVISION ADMINISTRATIVE PROCEDURE

ADAP-11-0004

ACCELERATOR DIVISION IMPLEMENTATION for MIN-SAFE CONDITION

RESPONSIBLE DEPARTMENT

AD Headquarters

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1 PURPOSE AND SCOPE

The purpose of this procedure is to outline the Accelerator Divisions response to a Min-Safe state being initiated. The following actions will be taken over a 5-day period to place the Accelerator complex in a safe and secure state. These conditions must be maintained for the period of the Min-Safe declaration. These conditions are chosen to protect people, property, and the environment with minimal staff present. These conditions ensure that mission activities will be able to resume as quickly as possible when the Min-Safe state is ended, and normal operations are scheduled to commence. This procedure describes the actions that must be taken to prepare the Accelerator Division for transitioning to this shutdown state. It has been determined that the only systems that will remain on will be the vacuum systems, sump pumps and other auxiliary systems to ensure the safety of personnel and equipment.

1.1 TIMELINE OF EVENTS

1.1.1 Min-Safe -5 days:

- Beam Operations
 - Turn Beam off to all users and begin placing the complex in Supervised Access Mode.
 - In addition: Departments will begin the task of securing their equipment in a safe state.
- Procurement
 - Assess for inbound procurements from vendors and international partners.
 - ◆ Identify shipping and receiving and equipment storage needs with CAMs.
 - ◆ Where possible, defer shipments not already inbound.
 - Assess and deploy procurement actions necessary for in place contracts consistent with the needs of the Min-Safe Plan.

1.1.2 Min-Safe -4 days:

- Beam Operations
 - Continue placing the complex in supervised access mode.
 - Verify that all Power Systems are in a safe state.
- ESH
 - Ensure all radiation surveys have been completed and postings updated.
- Division Operations

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- Division will provide WDRS AND Payroll a listing of individuals that will be furlough during min safe.

1.1.3 Min-Safe -3 days:

Continue previous day's activities.

1.1.4 Min-Safe -2 days:

- Beam Operations
 - Shut down and secure all LCW and closed loop systems
 - Verify that all Power Supply main power sources have been locked off.

1.1.5 Min-Safe -1 day:

- Facilities Services
 - Take final delivery of any Nitrogen needed to protect systems.

1.1.6 Min-Safe day and for duration:

- Beam operations
 - Operations Department will monitor the vacuum system and the general safe state of the complex while in the Min-Safe Mode.

2 RESPONSIBILITIES

2.1 Controls

The Controls department will be responsible for maintaining the accelerator control and monitoring system (ACNET). During the Min-Safe period, these systems shall be maintained in an operational condition during the Min-Safe state. The Controls department will additionally maintain the Fire and Utility Monitoring System (FIRUS).

2.2 RF

The RF Group will be responsible for turning off and making safe the RF systems under their control and will ensure supporting systems are in a safe state.

2.3 EE support

The EE Group will be responsible for locking off systems under their control during the Min-Safe period.

2.4 Instrumentation

The Instrumentation Group will be responsible for turning off and making safe the instrumentation systems under their control during the Min-Safe period.

2.5 Mechanical Support

The Mechanical Support Department will be responsible for ensuring their systems are in a safe state during Min-Safe period especially focusing on the vacuum system which will remain operational.

2.6 Operations

The Operations Group will be responsible for monitoring the system(s) that will remain on during the Min-Safe period for example; Fire alarms, vacuum systems, tunnel/enclosure sump pumps, as well as general environmental conditions in buildings that may lead to equipment damage such as freezing temperatures.

2.7 Environmental Safety and Health

The Environmental Safety and Health Section, specifically the Radiation Physics Operations group is responsible for completing radiation surveys and posting for the accelerator complex. Part of the configuration process that Min-Safe calls for is to place the accelerator complex into a supervised access mode. ESH role in this process is to Rad survey the complex, repost the tunnel enclosures and pull beam permits. All of which will be done in Accelerator Min-Safe mode.

2.8 Facility Services

The Facilities Service group will arrange for cryogenics or clean gas delivery for the duration of the Min-Safe period

3 Assignments

3.1 Operations Department

The Operations Department will work with all the support and machine departments to place the entire accelerator complex into a Supervised access mode.

Supervised Access is defined as: A radiation survey has been completed and documented since particle beams were accelerated or transported through the beam enclosure and the survey results have been appended to the appropriate Radiological Work Permit (RWP) binder. The radiation and electrical safety system interlocks have been dropped to prevent energizing of exposed electrical bus and to prevent particle beam transport. Power supplies for beamline components that have exposed electrical connections have been locked off.

Operations will follow all Lock Out Tag Out (LOTO) procedures required by the Supervised Access Procedure.

3.2 EE Support Department

The EE Support Department will assist other departments in placing their power supplies into a safe state following LOTO and other procedures established by their department.

3.3 Muon Department

The Muon Department will place into a safe state all equipment following LOTO and other procedures established by their department.

3.4 RF Department

The RF Group will place all RF systems in the Accelerator Division into a safe state following LOTO and other procedures established by their department for all RF and supporting equipment.

3.5 Instrumentation Department

The Instrumentation Department will place into a safe state all instrumentation following LOTO and other procedures established by their department.

3.6 Mechanical Support Department and CMTF

The Mechanical Support Department will place all systems into a safe state following procedures established by their department. The Vacuum system will remain functional during the Min-Safe period and will be monitored by the Operations Department.

3.7 Proton Source Department

The Proton Source Department with the aid of the Support departments and the Operations Department will ensure their machines are in a safe state. Any special requests for monitoring by Operations will be provided to the Operations Department Head.

3.8 Main Injector Department

The Main Injector Department with the aid of the Support departments and the Operations Department, will ensure their machines are in a safe state. Any special requests for monitoring by Operations will be provided to the Operations Department Head.

3.9 External Beams Department

The External Beams Department, with the aid of the Support departments and the Operations Department, will ensure their machines are in a safe state. Any special requests for monitoring by Operations will be provided to the Operations Department Head.

3.10 Target Systems Department

The Target Systems Department will place into a safe state all equipment following LOTO and other procedures established by their department.

3.11 The Controls Department

Will work with the Operations Department to ensure all necessary systems are in a functional condition and will provide the Operations Department with a list of personnel to be called in the event system maintenance or repair is required.

3.12 Fast Facility Department

Will work with the AP-STD division Cryogenics department to safely secure the cryogenic components and system. With the aid of the Support departments and Operations Department they will ensure their machines are in a safe state following LOTO and other procedures established by their department.

3.13 Environmental Safety and Health

Will complete Rad survey of all the accelerators enclosure and place the complex into supervised access mode. They will also lock off Critical devices to inhibit beam operations along with pull all beam operational permits.

3.14 Facility Services

Will arrange for delivery of any cryogenics or clean needs for the duration Min-Safe period if needed.

4 Personnel Needs

4.1 Accelerator Division Personnel Needs

Fifteen Operations personnel will be required to staff the control room with a three-person crew on a 24/7 basis. This will allow any needed repairs to follow the division's two-person rule while maintaining one person in the control room as required. Two individuals will also be needed to support FIRUS and the accelerator controls system.

Special circumstances may require the call in of knowledgeable system experts.

The rest of the Division will be furloughed.

5 Min-Safe Recovery

Recovery from the Min-Safe state will be coordinated by the Accelerator Division Management. Recovery efforts would consist of the following actions. Returning Accelerator Division personnel to an active work status, resuming suspended beam startup activities, and returning the Accelerator Complex back to an operational state.

6 DISTRIBUTION

An electronic, controlled copy of this procedure is maintained on the Accelerator Head Quarters website at: http://ad-esh.fnal.gov/ad_adap.html