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## Controlled Access – Collision Hall

### Revision Log

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1.0	3/7/01	All	Initial Issue
1.1	12/19/02	3-8	See Sidebars
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## 1 INTRODUCTION

### 1.1 Purpose

This procedure describes the actions to be taken when making a controlled access into the DØ collision hall.

### 1.2 Scope and Applicability

The DØ Controlled-access Coordinator, Shift Captains, all personnel making controlled access into the DØ collision hall, and Main Control Room personnel shall adhere to this procedure. Duties described herein for Accelerator Division Main Control Room personnel are provided for information only and are consistent with Accelerator Division operating procedures for controlled access. This procedure does not address supervised access, or any access while the toroid is powered.

## 2 PRECAUTIONS AND LIMITATIONS

- A. The collision hall is posted as a magnetic field hazard area. No person with a cardiac pacemaker is permitted to make controlled access to the DØ collision hall.
- B. The solenoid may be powered during controlled access. Consequently, the solenoid control dewar area in the south east corner of the collision hall at the top of the access ladder is off limits (and appropriate signs are posted in that area).

**NOTE**      *The solenoid control dewar area platform level is an exclusion area. Access to that level requires permission of the Technical Integration Coordinator or DØ Department Head or designee.*

- C. Current Radiological Worker Training, Controlled-access Training, DØ Hazard Awareness Training, and LOTO 1 Training are required for each person making a controlled access into the DØ collision hall.

- D. Controlled-access keys are to be kept on one's person at all times during the access. Controlled-access keys must NEVER leave the DØ area.
- E. If exposure rates exceeding 20 mR per hour are encountered during an access, personnel must leave the enclosure using the normal controlled-access procedure and inform the Controlled-access Coordinator.
- F. Items removed from the collision hall must be checked for radioactivity.
- G. Personnel must frisk themselves upon leaving the collision hall.
- H. The following work is not permitted without an approved Radiation Work Permit:
  - cutting, grinding, or welding
  - work on beamline magnet interfaces or beam pipes
  - work in posted contamination areas or high radiation areas

### **3 PREREQUISITE ACTIONS**

#### **3.1 Documents**

##### Controlled-access Coordinator

- [1] Locate the DØ Controlled-access Key Sign-Out Log.

#### **3.2 Special equipment, tools, parts, and supplies**

- [1] TLD badge
- [2] Hard hat
- [3] Closed toe shoes
- [4] Log Survey Meters (LSMs) for radiation surveys

#### **3.3 Special approvals**

##### Controlled-access Coordinator

- [1] Verify that the DØ Run Coordinator or designee has scheduled or approved the controlled access.
- [2] Obtain permission from the MCR Crew Chief to conduct the controlled access.

### 3.4 Special training

- [1] Current Radiological Worker Training, Controlled-access Training, DØ Hazard Awareness Training, and LOTO 1 Training are required for each person making a controlled access into the DØ collision hall.

## 4 PROCEDURE

### 4.1 Preparing for access

#### Controlled-Access Coordinator

- [1] IF the toroid power supply is on, THEN instruct the DØ shift operator to reduce the toroid magnet currents to zero amps and lock out the toroid power supply with a DØ Operations lock.
- [2] Before allowing entry into the collision hall, verify that the toroid is turned OFF, AND confirm with the DØ shift operator that the toroid power supply has been locked OFF.
- [3] Look in the window of the collision hall door, and verify that the red magnet status lamps properly reflect the current status of the magnets. The “Toroid on” lamp must not be illuminated. The “Solenoid on” lamp must be illuminated if the solenoid is powered, and must be off if the solenoid power is off. (If the red magnet status lamps visible through the collision hall entrance door are not indicating the proper status, then contact the Electrical Engineer responsible for DØ support and have the status lamp issue addressed.)

### 4.2 Making an access

#### 4.2.1 Duties of Controlled-access Coordinator

- [1] Document the controlled access using the DØ Controlled Access Key Sign-Out Log.
- [2] Inform each access team of the maximum permitted duration of the access.

- [3] Verify that each person is wearing a TLD badge.
- [4] Verify that each access team has a Log Survey Meter.
- [5] Call MCR (x 3721) and ask them to release the key tree door.
- [6] Issue a key to each member of each access team, giving the MCR their Fermilab ID numbers, and four-digit controlled-access key number. Record each key number in the DØ Controlled-access Key Sign-out Log.

**NOTE**        *One DØ collision hall controlled-access key must remain in the key tree at all times. This key is for emergency use only.*

- [7] Close the key tree door and verify that it is re-secured.
- [8] Remind all members of each access team about the status of the solenoid power.
- [9] Inform each access team that the access can begin.
- [10] Observe the entry to the collision hall

#### **4.2.2 Duties of each member of each access team**

- [1] Receive the controlled-access key from the Controlled-access Coordinator and keep it on their person until their access is completed.
- [2] Enter the collision hall using the proper entry procedure.
- [3] Survey their work area in the collision hall with the LSM.
- [4] If any members of an individual access team wish to exit the collision hall, all members of that particular team must exit together.

#### **4.2.3 Duties of Main Control Room operators**

- [1] Release the key tree door.
- [2] Ask for and enter the four-digit key number, and Fermilab ID into the key logger AND verify that each person requesting to make an access is qualified.

### **4.3 Ending an access**

#### **4.3.1 Duties of Controlled-access Coordinator**

- [1] Record the time of exit of each person in each access team on the DØ Controlled Access Key Sign-Out Log.

- [2] Inform the Main Control Room when an access team has completed its tasks and left the collision hall and request that MCR release the key tree door.
- [3] Retrieve each key and return it to the key tree, informing the MCR of each four-digit key number as it is returned.
- [4] Close the key tree door and verify that it has been re-secured.
- [5] Verify that the enclosure interlocks remain made up.
- [6] IF this is the last access team to leave the collision hall AND all keys are in the key tree, THEN do the following:
  - [a] Confirm that the electrical permit/warning sirens sound.
  - [b] Inform the MCR that all personnel are out of the enclosure, the access is at an end, and the beam permit may be restored, as far as DØ is concerned.
  - [c] Inform the DØ Shift Captain that s/he can record the end of access in the DØ Shift Log.

#### **4.3.2 Duties of each member of each access team**

- [1] Exit the collision hall using proper controlled-access procedures.
- [2] Inform the Controlled-access Coordinator that you have left the collision hall, and return your key to the Coordinator so it can be placed in the key tree.

#### **4.3.3 Duties of Main Control Room operator**

- [1] Release the key tree door.
- [2] Enter the key numbers of the returned keys into the key logger.

### **4.4 Departure from proper procedure**

#### **4.4.1 Potential safety concerns**

##### Controlled-access Coordinator

- [1] IF there is a departure from the controlled-access procedures during the access that could lead to a safety concern (for example, someone has entered the collision hall without a key), THEN do the following:
  - [a] Drop the collision hall interlocks by opening the controlled-access door.

- [b] Inform the following people:
- Particle Physics Division Radiation Safety Officer
  - Accelerator Division Radiation Safety Officer
  - Main Control Room Crew Chief
  - Shift Captain
  - DØ Run Coordinator
  - DØ Technical Integration Coordinator
- [c] Prepare a written account of the situation.
- [d] Await instructions from the Accelerator Division RSO.

**NOTE** *The Accelerator Division RSO will discuss the situation with the Accelerator Division and Particle Physics Division Heads.*

#### 4.4.2 Unintended dropping of enclosure interlocks

##### Controlled-access Coordinator

- [1] Inform the DØ Shift Captain, and instruct him/her to notify the MCR.
- [2] Obtain statements from each person involved and attempt to determine the reason(s) why the interlocks were dropped.
- [3] Determine, after consulting with the Shift Captain, the Run Coordinator, and the MCR, whether the controlled-access period should end immediately and all other controlled-access teams should leave the collision hall, or whether other controlled-access teams may continue with their accesses until it is time for the collision hall to be re-searched and secured.

**NOTE** *All accesses following an unintended dropping of the collision hall interlocks shall continue to follow the controlled-access procedure unless and until supervised-access conditions are established. IF a decision is made to revert to supervised-access status rather than re-search and secure the hall, than all controlled-access teams **must** leave the collision hall and return their controlled-access key before supervised-access conditions can be established.*

- [4] Prepare a note for the Run Coordinator, summarizing what happened.

##### Shift Captain

- [5] Contact the MCR and inform them of the dropped interlocks.
- [6] Arrange for a re-search and secure of the collision hall, or determine, in consultation with the MCR and the Run Coordinator, that the collision hall should revert to supervised access status.
- [7] Contact any other controlled-access teams in the collision hall, inform them that the interlocks were dropped, and indicate when the re-search and secure will occur or that the collision hall will revert to supervised access status. If the collision hall is to revert to supervised access status, then all controlled-access teams must leave the collision hall.

#### **4.5 Approaching the controlled-access time limit**

##### Controlled-access Coordinator

- [1] IF the length of the access is approaching the time limit specified by the MCR and the work is not near completion, THEN do the following:
  - [2] Ask the Shift Captain to contact the MCR to determine whether the access duration can be extended, if necessary.
  - [3] IF the answer is NO, THEN:
    - [d] Contact each access party.
    - [e] Request that everyone leave the enclosure.
    - [f] Go to section 4.3 of this procedure.
  - [4] IF the answer is YES, THEN contact the controlled-access teams and inform them of the extension.

## **5 REFERENCES**

- A. [DØ Call list](#)
- B. [FESHM 5062.2 “Static Magnetic Fields”](#)
- C. Controlled access course training materials: [http://www-esh.fnal.gov:8001/CourseHandout\\_Mat/Cont\\_Access/Cont\\_Access.html](http://www-esh.fnal.gov:8001/CourseHandout_Mat/Cont_Access/Cont_Access.html)
- D. TRAIN database: <http://www-esh.fnal.gov/pls/default/itp.html>

## **6 APPENDICES**

- A. None