
UITF PSS Sweep Procedure

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Estimated Time to Perform: ~10 minutes

Procedure Overview

This procedure documents the protocol for performing sweeps of the Upgraded Injector Test Facility (UITF). A sweep, which verifies that all personnel have exited the area, must be carried out before changing the Personnel Safety System (PSS) State from OPEN to RUN mode.

Prerequisites

The sweep requires only one person, but he/she must be certified by the Safety System Group as a qualified sweeper for the area to be swept.

Sweep Team Responsibilities

1. Lead Sweeper – Qualification requires that the Lead Sweeper be familiar with the sweep procedure and have already participated in a sweep of the area at least once.
2. The sweep team shall do the following:
 - a. Check in all confined areas, such as behind cryomodule, cable trays, storage bins, etc.
 - b. Arm all Run/Safe boxes in the proper order without deviation.
 - c. Perform the sweep in a timely manner.
 - d. Ensure that all exit doors are pulled tight and locked.
 - e. Ensure that all crash switches are not activated.
 - f. Have anyone found in the sweep area during a sweep accompany the sweep team for the remainder of the sweep.

3. The sweep team *shall NOT* do the following:
 - a. Perform any function other than those listed in Step 2, above. Mixing responsibilities can lead to distractions and the possibility of missing personnel in the sweep area. If a problem is found that needs attention or repair, fix it later. *Do not stop the sweep to perform maintenance.*
 - b. Have more than two people sweeping an area at any one time. An exception to this rule is that up to five personnel can participate in a sweep for training purposes.
 - c. Allow anyone found in the UITF enclosure during a sweep to remain behind while the sweep team finishes the sweep. This means that the sweep team *shall not* allow anyone found in the enclosure to continue their work and “get them on the way back.” Anyone found in the sweep area during a sweep *MUST* accompany the sweep team for the remainder of the sweep.
4. The sweep team must be alert for any unusual conditions in the sweep areas, such as tools, wiring, or shielding out of place, and notify responsible personnel before securing the area.

Pre-Sweep Steps

1. Verify that the grate is in place at the Cave2 helium vent, preventing access into the UITF enclosure. Verify RCD signage is properly posted.
2. Inform occupants of the Cave1 roof (mezzanine) of impending keV beam operations, alert them to the personal dosimeter requirement. Verify RCD signage is properly posted.
3. Inform all occupants to leave the UITF enclosure.
4. Verify that lead bricks are configured as shown in photographs attached to wall above each utility floor trench (there are seven trenches, see photos shown in chapter “Trenches’ Shielding Configuration”).
5. Verify that all Access Room Crash Switches are not activated (i.e. the switch is not pushed in).
6. Close both doors completely.
7. Confirm that the Magenta Beacons are flashing (this assures that the system is ready for a sweep).

NOTE: The total time allowed for the sweep is 5 minutes.
That’s from initializing the sweep with the key to closing the last door.

Detailed Sweep Sequence

Step	Sweep Team
1	<p>Complete all pre-sweep steps.</p> <p>NOTE: A detailed sweep map for the UITF vault (drawing S6024D01) is shown below and available as a hard copy in the PSS binder or on-line at: https://jlabdoc.jlab.org/docushare/dsweb/View/Collection-27494/</p>
2	<ul style="list-style-type: none"> a) Go to Control Room and turn the PSS State key in the left hand lock from OPEN to SWEEP and remove it. NOTE: Once you turn the key to SWEEP you have 60 seconds to enter the cave through Fire Exit Door (D2) before the Sweep drops. b) Confirm that the Magenta Beacons are flashing (this assures that the system is ready for a sweep). c) The Lead Sweeper enters Cave 1 through the Fire Exit Door (D2). d) Arm Run/Safe Box 601 in the hallway. e) Verify that the area behind the Gun and the ¼ Cryomodule is unoccupied. f) Verify the Faraday Cup is locked in place and the valve to the ¼ Cryomodule is locked CLOSED. g) Sweep the enclosure, walking all the way to the north wall of Cave 2. h) Arm Run/Safe Box 602. i) Look behind the beam line, cable tray, and any large obstacles. j) Arm Run/Safe Box 603 near the Labyrinth Exit. NOTE: Once the box is armed you have 45 seconds to exit the cave and close the door. k) Exit Cave 2 through the Labyrinth and Access Door (D1). l) Wait outside the Access Door (D1) for up to 30 seconds and by observing the door lock status light confirm that the door locks. m) Return to the Control Room and replace the key into the right hand lock. Turn the key from SWEEP to RUN to arm the Personnel Safety System when ready.

Sweep Map

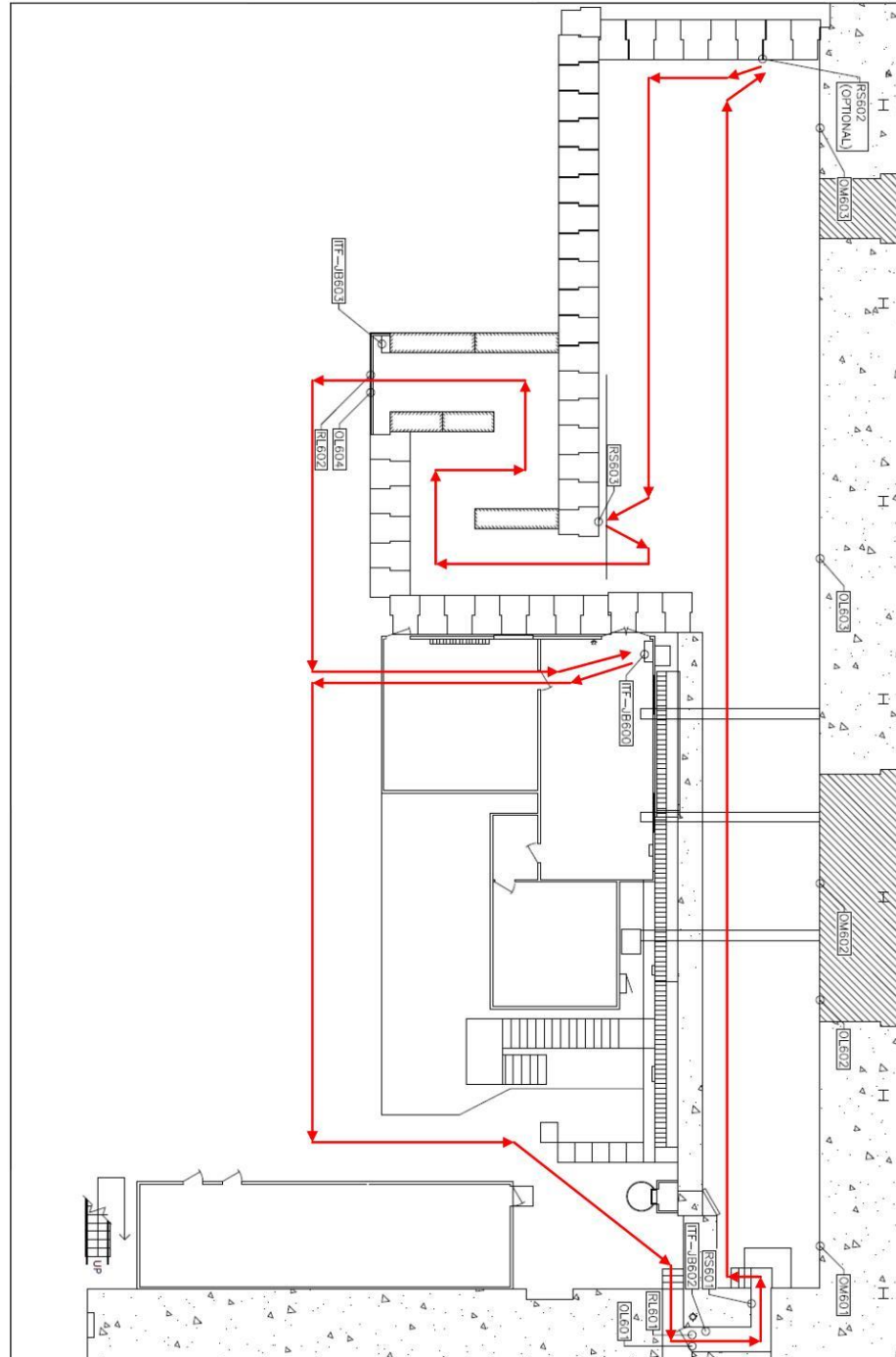


Figure 1 UITF Sweep Diagram

Trenches' Shielding Configuration



Figure 1 Trench 1 (nearest to the photogun, south side of UITF enclosure, Cave1)



Figure 2 Trench 2 (near the keV spectrometer dump, Cave 1)



Figure 3 Trench 3 (near the QCM, Cave 1)



Figure 4 Trench 4 (near insertable Faraday Cup IFYM401, adjacent to Control Room, Cave1)



Figure 5 Trench 5 (near the labyrinth exit/entrance, Cave2)



Figure 6 Trench 6 (middle of Cave2)

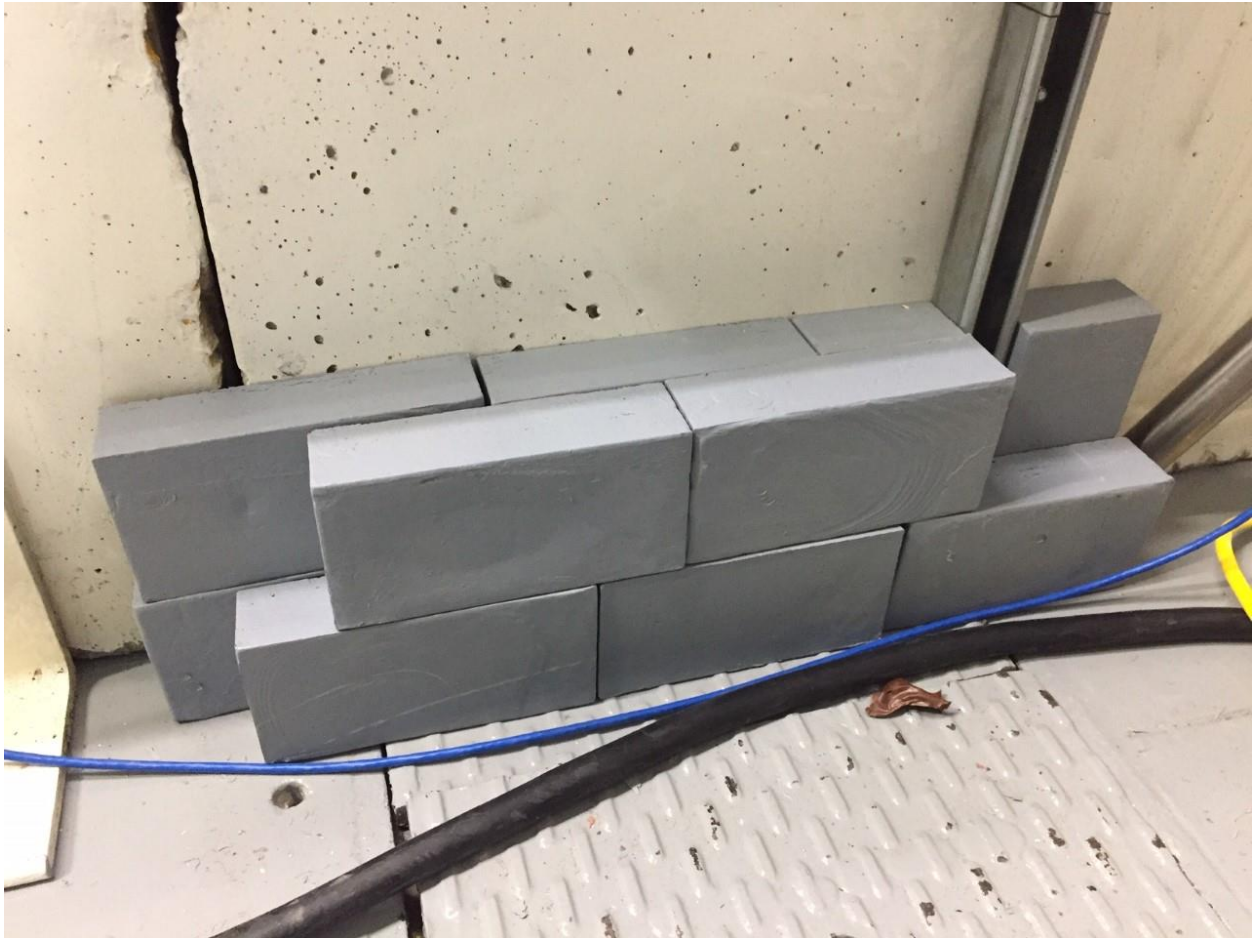


Figure 7 Trench 7 (northern most trench of UITF, Cave2)

Revisions

Rev.	Date	Paragraph	Description
19.1	7/2/19	Revisions	Added "Revisions" section
		Overview	Changed "Upgrade Injector Test Facility" to "Upgraded Injector Test Facility"
		Sweep Team Responsibilities, step 1	Added "already" in : "and have already participated"
		Pre-Sweep Steps, step2	Added "(mezzanine)"
		Detailed Sweep Procedure, step 2a	Changed "Door (D2)" to "Fire Exit Door (D2) Changed "cage door" to Access Door Changed "turn the key" to "turn the PSS State key"
19.2	11/27/19	Prerequisites, step 3	Highlighted in red key words: "shall not" and "MUST"
		Pre-Sweep Steps, step 4	Added step 4: "Verify that lead bricks are configured as shown in photographs attached to wall above each utility floor trench (there are seven trenches)."
		Detailed Sweep Sequence, step 1	Added reference to the drawing number
		Detailed Sweep Sequence, step 2	Added to step I): "by observing the door lock status light"
20.0	1/3/20	Pictures	Added chapter "Trenches Shielding Configuration" showing photos of shielding of each of the trench.