

Response to FSO Dose to Public Concern

Increase Area Monitoring

A number of locations throughout the Lab already have passive area monitors in place to monitor dose on a quarterly basis. These areas include some amount of space accessible to the public (i.e., Linac Pre-Acc tour location), users (i.e., FTBF) and other areas throughout the Lab. After looking at the current locations, and before performing the beam-on surveys, additional locations were identified to include in this area monitoring, to ensure that areas accessible to the public (i.e., not within locked buildings or fences) were appropriately monitored. Area monitors will be added to some “Additional Locations” during CY20Q4 with available area monitoring dosimeters.

All locations will be monitored and fully integrated into the RPO Routine Monitoring Program beginning CY21Q1, according to the following:

- All area monitors will use the Luxel style dosimeters
- The reports will be read down to the 1 mrem level
- There will be no background subtraction – reports will show the raw dose evaluation
- There will be a new account created with Landauer to ensure clear separation of area monitoring and personnel/occupational dose monitoring.

Further locations may be identified and monitored following the beam-on surveys, and will be incorporated into the area monitoring program.

Current Locations

- Footprint
 - Linac Pre-Acc Tour Area (17). Map name: “North Linac Area”. Luxel.
 - Linac lower level (27). Map name: “Linac Encl. & Pen”. InLight badges.
 - 25 penetrations
 - 1 near 750 KeV Gate
 - 1 near NIF
 - Linac Gallery Main Level (19). Map Name: “Linac Gallery Main Level”.
 - 9 along enclosure wall. Luxel
 - 8 in office LIG 139. 7 Luxel and 1 InLight.
 - 1 near NIF shield door. InLight.
 - 1 near 400 MeV access door. InLight.
 - Booster Gallery/Main Level (36). Map name: “Booster InLights”. InLight badges.
 - 26 inside Booster Gallery
 - 10 outside Booster Gallery
 - East Booster Tower (14). Map Name: “East Booster Tower First and Second Floor”. Luxel.
 - 4 in offices on 2nd floor.
 - 2 in West stairwell
 - 2 in offices on 1st floor.
 - 6 near enclosure on 1st floor.

- West Booster Tower (21). Map Name: “West Booster Tower First and Second Floor”. Luxel.
 - 3 desk locations on 1st floor.
 - 1 in office near Booster Long 6 on 1st floor.
 - Have seen neutrons here before.
 - 5 near enclosure on 1st floor.
 - 10 in offices on 2nd floor.
 - 2 in West stairwell
- Cross Gallery (13), due to Booster LCW pipes running below offices. Map Name: “Cross Gallery Main Level”. Luxel.
 - 2 in MCR
 - 1 in the Dungeon meeting room
 - 2 in the Interlock Offices
 - 8 Mechanical Support Offices
- Transfer Gallery (6). Map Name: “Transfer Gallery”. Luxel.
 - 4 in Mechanical Support Offices, due to Booster LCW pipes running below offices
 - 2 in Controls Offices
- MTA Service Building – none
- 8 GeV/Main Injector/Recycler – none
- SwitchYard
 - Meson Detector Building (MDB) Fermilab Test Beam Facility (FTBF) (15). Map name: “FTBF Area Monitor”. 7 InLight & 8 Luxel.
- Muon Campus
 - AP-10, AP-30, AP-50 (6 total, 2 in each building). Map Name: “Deliver Ring Badge Locations?”. InLight.
 - MC-1 Building (8). Map Name: “MC-1 Badge Location”. Luxel.
- NuMI/BNB – none
- NML/CMTF – none
- IARC – none
- Non-Accelerator areas
 - CZero – none
 - DZero – none
 - SiDet – none
 - Village – none
- Railhead – none
- Wilson Hall – none
- Leaderman Science Center – none
- Building 327 – none

Total current area monitors: 182

Additional Locations

In the process of adding locations to current maps where applicable, or generating new maps.

- WH7E (3)
 - In place in same location of InLight dosimeters, to measure background and correlate with accredited InLight dosimeter background measurements
- Footprint
 - Linac West Fence (10)
 - Linac Gallery Badges (9 new). Map Name: "Linac Gallery Badges". Luxel.
- MTA Service Building (2)
- 8 GeV/Main Injector/Recycler
 - All MI Service Buildings LCW Rooms (except 14, 31 and 39) (1 in each SB, 3 in MI-8, 16 total). Part of MI Proposed map.
 - LCW DI bottles.
 - MI-30 parking lot (1)
 - MI-30 pond (1)
 - MI-60 RF Cavity Test Cave (1). Part of MI Proposed map.
 - MI-60 High Bay (1). Part of MI Proposed map.
 - MI30-MI40 Road/Site Boundary (3). Part of MI Proposed map.
 - May need JULIE/FESS help to install stanchions
- SwitchYard
 - NM4 Service Building Outdoor (4)
 - 2 by road
 - 2 in parking lot
 - NM4 Service Building Inside (10)
 - MC7 Gate (1)
 - MC8 Gate (1)
 - FTBF Staff Office Area (2). Add to "FTBF Area Monitor" map.
 - MDB East (2)
 - Service buildings adjacent to active beamline
 - G2 Service Building (1)
 - SYSB (1)
 - NS0 (1)
 - NS1 Service Building (2)
 - 1 in parking lot
 - 1 in LCW room
 - MS2 Service Building (2)
 - 1 in parking lot
 - 1 in LCW room
 - NS7 (1)
 - NTSB (2)
 - Encl. B/C Gate (3)
 - For IERC construction
 - Shield Block Storage Building (1)
 - Meson Assembly Building (1)
- Muon Campus
 - AP-0 Service Building (2 inside building, on south/west wall). Part of MI Proposed map.

- MC-1 Rollup Door (outside) (1)
- Mu2e Service Building (TBD)
 - Will be added when Mu2e operations begins.
- NuMI/BNB
 - MI-65 Service Building (1). Part of MI Proposed map.
 - MI-12 Service building SE corner/parking lot. (1). Part of MI Proposed map.
 - Probably near 1000 cfm air handler.
- NML/CMTF (10)
 - CMTF Control Room (1)
 - CMTF west cave wall (tour location) (3)
 - NML south catwalk (tour location) (1)
 - NML North Loading Dock (1)
 - NML Lower Level East wall (tour location) (4)
- IARC/HAB (2)
- Non-Accelerator areas
 - CZero (1)
 - DZero (1) In the tour area near old control room
 - SiDet (1)
 - Village
 - Aspen East (1)
 - Daycare (1)
 - Village Machine Shop (1)
 - Fire Barn (1)
 - People park near here for soccer field, building stores radioactive material
- Railhead
 - North Fence/Site boundary (3)
 - South edge of South Hardstand (2)
- Wilson Hall
 - Auditorium (2)
 - Ground Floor (1)
 - 1st Floor (1) east side near elevator
 - 2nd Floor (1) east side near elevator
- Leaderman Science Center (1) at main desk
- Building 327 (on rad material locker) (1)
- RPCF (1)
- RAF (1)
- Site 40 parking lot/fence (1)
- Cemetery (1)
- Misc.
 - Bison Fence (1)
 - Dog Training center (1)

Total new area monitors: 124

Starting CY21Q1 total area monitors: 306