#### ESHS-BODA02 Fermilab Fire Department Beam-On Dose Assessment (BODA) Response

A. General Guidelines

Fermilab Firefighters will be the first responders to arrive at Site 39 Annex Beam-On Dose Assessment (BODA) Facility. Radiation Physics personnel will arrive as soon as possible to take over for Fire Department personnel. Radiation Physics personnel don’t carry emergency pagers so they need to be contacted by the Communications Center or the Radiological Control Organization Emergency Call List located on the table near STATION 2.

Firefighters will be taking measurements and collecting data using a portable survey meter and a sodium iodide detector computer system. Firefighters are not expected to make any dose assessment. **Refer all questions to Radiation Physics personnel.**

Two or more responders should carry out these procedures. If possible, at least one of the responders should be the same gender as the exposed person(s). Security Department personnel can be contacted to arrange for person of the appropriate gender, but do not delay starting these procedures on this account.

Most of the radioactivity produced in a person's body is short-lived, so the amount of radioactivity decreases rapidly over time. **It is important that counting begin as soon as possible after the exposure. Don’t wait for Radiation Physics to arrive**. **As many counts as possible should be collected within the first hour after the exposure. However, if any of the exposed persons are seriously injured or exhibiting signs of radiation sickness, as always, medical treatment takes precedence over body counting measurements.**

B. Initial Notification and Response Activities

1. In responding to a beam-on exposure, be aware that the exposed person may also be contaminated. Appropriate precautions should be taken to prevent the spread of contamination.

2. Verify that no response personnel have received a nuclear medicine diagnostic test during the past month.

3. **If any of the exposed persons are seriously injured, extremely stressed, panicked, or** **display signs of radiation sickness (nausea, vomiting, diarrhea, and/or convulsion)**, **transport him/her to Delnor Hospital immediately.** **Stop by the BODA Facility to pick up the portable survey meter and clipboard with Portable Survey Meter Measurements Form. Take measurements in route to the hospital using the portable survey meter.** Notify hospital personnel that the exposed person may be contaminated with radioactive material. If indicated, inform hospital personnel that you suspect the person is suffering from acute radiation sickness. The Fermilab Medical Office should be notified as soon as time permits. Radiation Physics personnel will travel to Delnor Hospital in a separate government vehicle.

4. If there are no serious injuries, the exposed person(s) should be provided with coveralls, gloves, and booties to put on over his/her clothing at the scene. If no protective clothing is available, wrap the exposed person in a sheet to prevent contaminating the transport vehicle. **The transport vehicle must be surveyed by a Radiological Control Technician before it leaves Site 39 Annex.**

5. After the exposed person(s) has donned protective clothing, he/she should be transported to Site 39 Beam-On Dose Assessment Facility. The key is a 1A-8.

6. Provide the following instructions to exposed person(s):

* Don't touch anything. Doors will be opened and closed for you.
* Do not adjust your clothing; you might contaminate it.
* Avoid touching your face and hair. Do not rub your eyes.
* Remain in one place until you are instructed to move.

# C. Measurements for Multiple Exposed Persons

1. Only one exposed person should be in the room while taking counting data at STATIONS 2 and 3. Responder 1 should instruct exposed person 1 to leave the room and accompany him/her to transport vehicle.
2. Responder 1 should take portable survey meter and Portable Survey Meter Measurements Form (R.P. Form #97) located at STATION 2.
3. Responder 1 should follow instructions on RP Form #97 to collect and document portable survey meter measurements.
4. Responder 1 should continue taking measurements until notified that it is time to switch exposed persons (about 15 minutes).
5. Responder 2 should begin counting exposed person 2 at STATION 3 and follow Computer System Measurements at STATION 3.
6. At STATION 3, each run consists of 5 1-minute counts. After 3 runs at STATION 3, switch exposed persons 1 and 2.
7. Staple and label 10-page packets as follows:

Person 1 Name/ID, Run #1

Person 1 Name/ID, Run #2

Person 1 Name/ID, Run #3

Person 2 Name/ID, Run #1

Person 2 Name/ID, Run #2

Person 2 Name/ID, Run #3

# D. STATION 1: Getting Exposed Person Ready for Body Counting

1. Response personnel should don gloves to guard against contamination. Gloves are in the BODA supply CABINET 1.

2. Instruct the exposed person as follows:

* Avoid unnecessary movement.
* Remove rings if possible. Put them in a baggie and place the baggie in the aluminum can located in the restroom.
* Don a pair of gloves.
* Remove eye glasses as applicable. Put them in a baggie and place the baggie in the box located in the restroom.
* Remove dosimetry badge, self-reading pocket dosimeter, and Fermilab ID badge. Put dosimetry and ID badge in a baggie.
* Remove watch, jewelry, coins, and all other metal objects. Put these items in a baggie and place the baggie in the aluminum can located in the restroom.
* Remove gloves and put them in the radioactive waste container located in the restroom.

3. Provide the exposed person with a fresh set of gloves, coveralls, and booties from CABINET 1. Instruct him/her to remove clothing down to his/her underwear and put on protective clothing.

4. Instruct the exposed person to put his/her clothes in the radioactive waste container located in the restroom.

1. After the exposed person has changed, instruct him/her to exit the restroom.
2. Response personnel should close the restroom door.
3. If there is more than one exposed person, write his/her Fermilab ID number and name on a label and attach it to his/her coveralls.

8. Repeat above procedure for each exposed person.

E. STATION 2: Portable Survey Meter Measurements

### 1. Turn portable survey meter to x1 scale position.

2. Place the probe, using the red dot for assistance, at the location of the body where the beam struck or, if not known, on the exposed person’s midsection.

1. Press the small round gray switch on the top right of the meter face. This button starts counting for one-minute intervals. A red light will come on during counting and will shut off at the end of each one-minute count.
2. Record the number displayed in the scaler box on the instrument meter face for each one-minute count.

5. Record the number shown in the scaler display box on Portable Survey Meter Measurements Form (R.P. Form # 97).

6. Collect and record at least 3 one-minute count measurements.

F. STATION 3: Sodium Iodide (NaI(TI)) Detector Computer System Measurements

1. Verify that the computer and printer are on.
2. Remove the Plexiglas block and place a fresh disposable sheet on the cot.

3. Instruct the exposed person to lay on the cot so that his/her midsection is lined up with the red arrow. Ask him/her to remain as still as possible during counting.

4. Double click on **MAESTRO™**.

5. Go to **SERVICES** menu. Use pull down menu to select **JOB CONTROL**.

6. Double click on **BODYCT**.

7. When **MAESTRO™** exits back to **WINDOWS™**, a run has been completed. Run # is each successive set of 5 one-minute counts for each person.

1. Each Run # has 10 printouts. Staple the 10-page packet together.
2. Write Run # and the exposed person’s name/Fermilab ID on report packet.
3. Repeat steps above for each exposed person. For multiple exposed persons, switch persons after every 3 Runs (15 minutes).
4. Continue counting until Radiation Physics personnel arrive.
5. If computer or printer isn’t working, go back to STATION 2 and use portable survey meter to take measurements until Radiation Physics personnel arrive.