INSTRUCTIONS FOR IRRADIATING OSL DOSIMETERS

PLEASE FIND ENCLOSED:

A. FOR PHOTON IRRADIATION:

1. A set of acrylic blocks (one for each photon energy) each containing two OSLD. Each block is labeled with an ID number and the energy range for which it is appropriate.
2. A small collapsible plastic platform and stand used for photon OSLD irradiation only.
3. One "Photon Beam OSLD Irradiation Form" per energy.

B. FOR ELECTRON IRRADIATION:

1. Three 9 x 9 x 3 cm acrylic rings with a central square hole. These form the exterior of the electron OSLD phantom.
2. Three central acrylic plugs (for three different electron energies) containing OSLD for each machine with electron capabilities. Each plug is labeled with a unique ID which corresponds to the ID printed on the corresponding irradiation form, please confirm. The plugs are designed to have one set of OSLD near d_{max} and one set in the linear fall-off region between 80% and 50% depth dose.
3. One "Electron Beam OSLD Irradiation Form" for each machine with electron capabilities.

GENERAL INSTRUCTIONS

1. **Report all machine changes/replacements to the IROC HOUSTON before performing any of the irradiations.** To insure that our records remain current, all facilities are required to complete the IROC HOUSTON's new online facility questionnaire on an annual basis. If your facility has not recently submitted a questionnaire, please email a request to irochouston@mdanderson.org and we will provide a link to your facility questionnaire as well as a username and password.
2. Check the output of the beam before irradiation.
3. Irradiate the OSLD as instructed on the attached sheets. Note that the set-up for electron beams differs from that of photon beams.
4. Fill out the appropriate OSLD irradiation forms.
5. Enclose the depth dose curves for the electron energies used.
6. Return the OSLD blocks containing the OSLD, the plastic platform, the electron phantom, and the forms to us in a box. For your convenience we have enclosed UPS shipping instructions and label for returning the OSLD to us.
7. **Please try to irradiate and return the OSLD within two weeks of their receipt.**

SPECIAL NOTES

1. Protect the OSLD from accidental irradiation.
2. Do not remove the OSLD from the blocks at any time. If the OSLD fall out of block call the IROC HOUSTON at (713)745-8989.
3. Use the back of the irradiation form to indicate any conditions of irradiation or beam calibration that may be helpful to the IROC HOUSTON in interpreting the results.
4. With OSLD, the IROC HOUSTON will compare your results against dose to the medium that is used by the institution (water or muscle). This represents a change from the practice used with TLD irradiations in the past.

DEFINITION OF OUTPUT SPECIFICATION POINT

The "output specification point" is that point in phantom at which your calibration dose rate is specified, after all correction factors have been applied to the measured reading. This is not necessarily the point at which the beam is calibrated. If the accelerator output is adjusted to be 1.000 cGy/mu at 100cm SSD at the depth of maximum dose, then 100cm + d_{max} is your output specification point, regardless of whether you calibrate the beam at d_{max} or 10cm depth. We are looking for those conditions for which your nominal dose rate is exact.

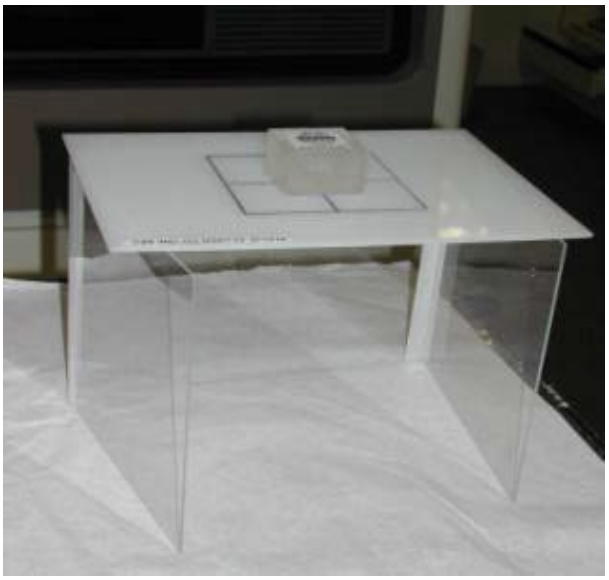
PHOTON OSLD IRRADIATION INSTRUCTIONS:

1. Place the plastic platform on the treatment table under the beam and set your nominal SSD (or SAD) to the top surface of the platform. (NOT to the top, or middle of the OSLD block). See Figure 1 below.
2. Set a 10 x 10 cm field at the platform surface (etched in top) except for Cyberknife machines. For Cyberknife machines use the 6cm diameter cone.
3. Place the OSLD block, with the labeled side toward the source, on the platform in the center of the field. Do not reset the SSD. See Figure 2 below.
    a. Deliver **100 cGy** to your output specification point at this distance. (See definition on page 1).
5. Fill out the "Photon Beam OSLD Irradiation Form".
   Note: The IROC HOUSTON will make the necessary corrections to the OSLD readings to account for the position of the OSLD and any differences due to scatter to specify its measured dose at the institution's output specification
   point.

Figure 1

Set SSD to the top surface of the platform.

Figure 2



Place block label toward source and in center of field.

ELECTRON OSLD IRRADIATION INSTRUCTIONS:

THE ELECTRON ENERGIES TO BE USED ARE SPECIFIED ON THE ELECTRON IRRADIATION FORM.

Note: You may use a radiation field area larger than the phantom. The electron beam OSLD phantom is designed to provide scatter radiation to the OSLD similar to that encountered in a full phantom.

1. Set the standard reference calibration cone size for the electron energies to be audited.
2. Place the phantom directly on the treatment table with the central hole centered in the irradiation field. DO NOT USE THE PLASTIC PLATFORM.
3. Insert the appropriate plug for the energy to be used with the labeled side toward the beam.
4. Set the SSD to the top surface of the phantom, not to the treatment table. This differs from the photon OSLD set-up. See Figure 3 below.
5. Deliver **100 cGy** to the specific electron energy d_{max} depth to be audited.
6. Fill out the "Electron Beam OSLD Irradiation Form".
7. Repeat steps 5 and 6 for the remaining electron energies.
8. Enclose a copy of the depth dose data for the energies and field sizes used that were audited.

Figure 3

Set SSD to top surface of phantom.