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Wyoming Valley
Health Care System

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To: Donna Jonda	From: Cindy Turchin
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Phone: 552-1740	Date: 1-5-06
Re:	CC: <i>map</i>

● Comments:

Donna - as per your phone call yesterday. If you need additional info, Joe Krzysik is the physicist. You can call him directly @ 570-552-1300. Or you can call me @ 570-552-1740. Thanks.

Cindy Turchin
RSO

[REDACTED]

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NUMERICAL MATERIALS-002

I. Full Calibration Procedures

A. Frequency

1. Following replacement of the source.
2. Following reinstallation of the unit in a new location outside the facility.
3. Following any repair that includes removal of the source or major repair of the components associated with the source exposure assembly.

B. By Whom

1. The authorized physicist or his designee.

C. Measurements

1. Source strength calibration
2. Accuracy of the radioactive source positioning. The tolerance is ± 1 mm.
3. Test of the backup battery to verify emergency source retraction capability upon power failure.
4. Length of the source transfer tubes
5. Timer accuracy and linearity
6. Length of applicators
7. Function of the source transfer tubes, applicators, and transfer tube-applicator interfaces

D. Source Strength Calibration

1. A re-entrant well ionization chamber will be used to calibrate the HDR source strength. Both the well chamber and the electrometer shall have been calibrated by an AAPM ADCL within last 2 years.
2. The AAPM TG 41 protocol will be used for calibration.
3. The source homogeneity will be checked by an autoradiograph.

E. Record Maintenance

Records of monthly **safety checks** of the HDR device will be maintained for three years and will include the **following** information:

1. the date of ~~the~~ checks,
2. ~~the~~ results of the **checks**,
3. for the **source position** accuracy **check**, ~~the~~ programmed position and **actual** position of the **source** following **activation** of ~~the~~ device, and
4. ~~the~~ initials of the Individual who performed the **checks**

Records of the **full** calibration will be maintained for three years and will include ~~the~~ following information:

1. **The calibration date**,
2. the manufacture's name, model number and serial number for both the HDR and the source,
3. the manufacture's name, model number and serial number of the ~~instrument~~ used to measure ~~the~~ HDR device output,
4. the name of the individual ~~who~~ performed the measurement, **and**
5. the HDR source strength and ~~the~~ manufacturer's 'expected' value (**decay** corrected). These values should agree within $\pm 5\%$.

II. Source Change Protocol

A. Frequency

The HDR Ir-192 source will be **changed** approximately every three months.

B. Source Changed By Whom

Only personnel appropriately licensed to install radioactive sources in the **MicroSelectron-HDR** will exchange the Ir-192 source.

C. Procedures

1. Acceptance of new source: ~~the~~ Radiation Oncology physicist will check shipping papers, labels on source, survey shipping container, before releasing ~~the~~ source to ~~the~~ installer.
2. Source ~~radiation safety~~ survey: ~~After~~ new source is installed, the Radiation Oncology physicist shall perform a radiation safety survey.
3. **Source change** acceptance test: The source ~~installer~~ and the Radiation Oncology physicist ~~will~~ perform ~~the~~ acceptance test together.
4. Calibration: The Radiation Oncology physicist will perform ~~a~~ full calibration ~~after the~~ acceptance ~~test~~ has been **passed**, as per the full calibration procedures.

D. Source Disposal

~~Used~~ HDR Ir-192 sources will ~~be~~ shipped back to the manufacturer for disposal

I. HDR Daily Operating Procedures

A. Posting of operating procedures

Copies of operating procedures will be maintained at the treatment console area.

B. Daily Start up

1. All operators **must** wear their film badges according to hospital radiation safety procedures.
2. Obtain room and MicroSelectron-HDR keys from the physicist's office.

C. Daily Spot Checks

The radiation therapist/Medical Physicist, using **the** HDR DAILY QUALITY ASSURANCE SPOT CHECK form, shall perform a daily spot check **before** the first patient treatment on **a** given day.

1. Turn the operation key to **Prepare** position. It will go through a self-test. Make **sure** all indicators are OK. Confirm **that the** self-test **was** successful. Confirm that the 'Caution Radioactive Materials' and the 'Caution High Radiation **Area**' signs are on **the** door to the room.
2. Test the CCTV camera system and the intercom system.
3. Turn **ON** and check **the** survey meter using the dedicated check source.
4. Check the "emergency off and 'interrupt" key for proper operation.
5. Check the door interlock for proper operation.
6. Check the in-room radiation wall monitor.
7. Check the catheter-disconnect interlock by attempting to send the source out with the locking ring in the unlocked position.
8. Check the timer accuracy by comparison with a stopwatch.
9. Check that the **date and** time in the HDR computer are correct.
10. Check the mechanical integrity of **all** applicators, source guide tubes, and connectors by visual inspection.
11. Check **that** the emergency equipment is in place.
12. Take an autoradiograph of source positions using the tandem applicator. Place a pinprick at the **tip of the** applicator.
13. Check the source activity against the decay table.

If **any** test fails, **do not treat** the patient. Call the physicist and service to resolve and correct it.

A record of **these** checks **will** be maintained for a period of three years and will include the following information: a) **the** date of the check; b) the results; and c) the initials of the individual who performed **the** check.