Yale New Haven Hospital
1826
20 YORK STREET, NEW HAVEN, CT 06504

License No. 06-00819-03
Docket No. 030-01244
MLER-RI - 96-58

Michael J. Bohan, Radiation Safety Officer
Radiological Physics - WWW 204
(203) 785-2950

September 6, 1996

Docket No.: 030-01244
License No.: 06-00819-03

Ms. Neelam Bhalla & Mr. Ihor Czerwinskyj
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Subject: Report of Loss of Five Iodine-125 Seeds at Yale-New Haven Hospital

Dear Ms. Bhalla & Mr. Czerwinskyj:

In accordance with the regulations contained within 10 CFR 20.2201(b)(1), Yale-New Haven Hospital (YNHH) is reporting an apparent of loss of licensed materials.

A. Description of the Licensed Material Involved

The lost material consists of five Iodine-125, Amersham/Medi-Physics Model 6711, titanium encapsulated seeds. The seeds were apparently misplaced either on 6-Mar-96 or on 26-Jul-96, resulting in a total loss of activity of 13.4 mCi for the former date or a total of 2.58 mCi if the loss occurred on the latter date.

B. Description of the Circumstances Under which the Loss Occurred

A batch of 50 seeds were originally ordered on 22-Feb-96, for use in an eye plaque implant. The 50 seeds were received on 23-Feb-96 with a manufacturer's calibration of 2.98 mCi @ 26-Feb-96. The package was surveyed and the seeds were leak tested, inventoried and a calibration check was performed. After successful completion of these standard tests, a paper inventory log record and a computerized inventory record were completed.

Later on the same day, 49 of the seeds were used to fabricate an eye plaque. The plaque was gas sterilized and implanted on 28-Feb-96. The implant was removed on 4-Mar-96 and the patient was surveyed by the Assistant Radiation Safety Officer (ARSO) with a Low Energy Gamma (LEG) type probe connected to a portable survey meter . Additionally, a visual inventory of the seeds by the ARSO was performed in the O.R. area to confirm the presence of 49 seeds before release of the patient.

The plaque was placed in a lead shield filled with a biological sterilizing solution and returned to the Radiation Safety Office Hot Lab. In the Hot Lab, the plaque was placed in an acetone solution to dissolve the glue that held the seeds in place. After soaking overnight, the gold plaque was recovered, surveyed, cleaned and returned to the medical physics staff. The recovered seeds were then transferred to a test tube filled with a leak test solution and allowed to soak overnight in a lead shield.

The leak test was performed on 6-Mar-96 with negative result. The seeds were then dried with isopropyl alcohol and counted in the hot lab glove box using a counting jig. The one seed which was not used in the eye plaque was removed from the vial and placed in the counting jig to confirm the inventory for a total of 50 seeds. The ARSO documented the inventory check in the source inventory log and placed the seeds back into the original source vial and associated lead shield. The lead shield was then placed back on the inventory shelf. He then performed a G.M. survey of the hot lab area including the glove box with a negative result.

The seeds remained in the inventory until 26-July-96. On that date, the seeds had decayed to an average activity of 0.515 mCi, making them suitable for permanent implant. The authorized user (AU) requested the seeds for a palate/pharynx implant. A staff dosimetrist went up to the RSO Hot Lab and signed out the 50 seeds from the inventory. She transported the seeds down to the dosimetry section and transferred the seeds to a second dosimetrist. The second dosimetrist placed the unopened shielded vial in a transport box along with the various documents and apparatus needed for the implant process. The seeds were under her direct supervision at all times while they were in the dosimetry section. The Operating Room (O.R.) notified the dosimetrist that the patient was ready and she proceeded to the O.R. with the unopened vial and the dosimetry survey meter.

The dosimetrist changed into O.R. "scrubs" while keeping the seeds under her control at all times. She then went to the scrub room connected to O.R. #10 and waited for the AU to arrive. He arrived shortly thereafter and the dosimetrist proceeded to prepare the seeds for autoclaving. She opened the shield and inner vial and transferred the seeds to a glass cup. She checked to see that all seeds were removed from the vial and placed the empty vial back into the original shield. She placed some gauze pads over the glass cup containing the seeds and secured the gauze with an elastic band. She then placed the glass cup into a larger stainless steel cup meant to contain a spill. The stainless steel cup was then placed in an autoclaving tray and put through a 10 minute autoclaving cycle. The dosimetrist kept the autoclave under her observation during the entire sterilization cycle, retrieved the seeds, and transferred them into O.R. #10. The stainless steel cup was placed on a sterile table and the gauze was removed. There was no evidence that the seeds had been disturbed during the autoclaving process.

The AU prepared for the implant by placing one seed each into six trocars. Using the trocars one by one, he then injected individual seeds into the treatment field, stopping after the last one to reload the six trocars again. The AU proceeded to do this six times for a total of 36 seeds implanted. The AU and the dosimetrist stated that no spills of seeds or difficulties were encountered during the implantation process. At this time, the AU told the dosimetrist that he was finished and to count the remaining seeds. The count revealed 9 seeds remaining instead of the expected 14.

The dosimetrist immediately conducted a survey using a pancake type G.M. probe connected to a Ludlum Model 3 survey meter. The remaining 9 seeds were placed back into the original vial and shielded in the original pig. She carefully surveyed the sterile preparation table, the gauze, the trocars, the floor, the "Red Bag" waste, the normal trash, the autoclave, the scrub room area and the blood suction apparatus with negative results. She then reported by phone the apparent missing seeds to her immediate supervisor.

After preliminary notification, she went back into the O.R. and resurveyed using a LEG type probe which has a much higher sensitivity for low energy gamma rays than the pancake G.M. probe. All areas were resurveyed again with negative results. The dosimetrist released the room and went directly to the Radiation Safety Office to report the problem to the ARSO. The ARSO checked the Hot Lab Log to see if the seeds had been used for any other purpose since the eye plaque. Finding that the seeds had not been used since the eye plaque, he proceeded to O.R. #10 to perform a confirmatory survey.

When the ARSO arrived at O.R. #10, the O.R. staff had begun preparation of the room for the next case. The ARSO performed a survey with a second Ludlum Model 3 with a LEG Probe. He surveyed the scrub area and the O.R. with negative results until he approached the wall adjacent to the hallway. There, he noted an elevated signal. Exiting the room into the hallway he observed the waste bags and blood suction wastes left over from the procedure. He discovered that the blood suction bottle at that time had an easily discernible radiation signal but that the other wastes were not radioactive.

He took the suction bottle to a clean up area and recovered 3 seeds. However, it is believed that these seeds came from the 36 implanted seeds and do not account for the missing 5 seeds. He returned the recovered seeds to the RSO Hot Lab and did an inventory check of all remaining seeds in the Hot Lab inventory.

The dosimetrist and the AU ordered a portable x-ray of the patient to see if the seeds may have been implanted in the patient. However, the patient had received a prior implant of 80 Iodine-125 seeds on August 12, 1991, in the floor of mouth, tongue and tonsilar fossa. The seeds of the second implant could not be separated on the films from the original implant. In addition, fillings and other anatomical structures prevented a complete seed count to be performed to confirm the "missing" 5 seeds. A second set of simulator films also could not be used to confirm the missing seeds with confidence.

C. Probable Disposition of the Licensed Materials Involved

After extensive investigation, the hospital is unable to definitively identify the specific pathway for loss of the five seeds. There are three possible scenarios for loss:

1. The seeds may have been lost on 6-Mar-96 in the RSO Hot Lab, after the ARSO had performed the inventory which confirmed 50 seeds at that time. He may have misplaced the 5 seeds during the process of returning the 50 seeds into the original shielded vial. However, standard surveys of the Hot Lab area were performed immediately after the completion of the process with negative results. In addition, routine weekly surveys of the Hot Lab through and after that period were performed with negative result. At that time, the seeds had an individual apparent activity of 2.68 mCi for a total activity loss of 13.4 mCi. In the unlikely event that they were lost in the Hot Lab, the most probable pathway for loss would have been through normal trash.

2. The seeds may have been lost on 26-Jul-96 in the area of Operating Room #10, by the dosimetrist sometime during the preparation of the sources during the implant process. However, three separate surveys of the O.R. area, by two different individuals were performed with negative results, immediately after the realization that seeds were unaccounted for. At this time, the seeds had an individual apparent activity of 0.515 mCi for a total activity loss of 2.58 mCi. The most probable pathways for loss from the O.R. area would have been through "Red Bag" wastes, normal waste, or through the linen service.

3. The seeds may have been implanted into the patient. The AU was maintaining an extemporaneous seed count along with the dosimetrist during the implant process. Although they both strongly believe that only 6 groups, of 6 seeds each, for a total of 36 seeds, were implanted. It remains possible that they may have implanted more seeds than they believed. This scenario cannot be confirmed radiographically because of the anatomical problems and previously implanted seeds mentioned above.

D. Possible Total Effective Dose Equivalent to Persons in Unrestricted Areas

Other than being implanted in the patient, the most probable loss pathway would have been through normal waste. Under the worst case for this pathway, the 5 seeds with a total apparent activity of 13.4 mCi would produce unshielded dose rates of 21.6 mR/hr @ 30 cm and 1.9 mR/hr @ 1 meter. Since Iodine-125 gamma rays are approximately 30 keV and have a half value layer in lead of 0.025 mm and approximately 2 cm in tissue or water, these dose rates would be appreciably lower if the sources were intermingled with a solid waste stream. It is unlikely that waste handling personnel would receive a total effective dose equivalent in excess of 100 mR.

Solid wastes would eventually be transported to an incineration facility for disposal. Since encapsulated Iodine-125 seeds self-shield themselves by a factor of 1.6, the worst case real activity lost would be 21.4 mCi. This would require a total dilution volume of 7.15×10^{13} ml to reach 10 CFR 20 Appendix B Effluent Concentration Levels for Air. The intake volume for the local trash to energy plant is 2.27×10^{9} ml/min. If the total activity were dispersed within a 24 hour period, the average stack activity would be 6.55×10^{-9} uCi/ml, which is 21.8 times the unrestricted effluent concentration limit in Appendix B. Further dilution after release from the stack would make it unlikely that any member of the public would receive a total effective dose equivalent in excess of 100 mR.

It is highly unlikely that the sources were lost in the "Red Bag" waste because all such wastes are surveyed before release by an alarming rate meter device before shipment. This waste stream was carefully monitored after this incident with negative results.

The final possibility is that the sources may have been intermingled with linen wastes on 26-Jul-96. At this time, the total apparent activity of the 5 seeds would have been 2.58 mCi. External dose rates from the seeds would have been 4.2 mR/hr @ 30 cm and 0.4 mR/hr @ 1 meter. It is unlikely that linen handling personnel would receive a total effective dose equivalent in excess of 100 mR.

The eventual disposition of seeds through this pathway would have been to the sanitary sewer system. The titanium encapsulated seeds are designed to remain intact in aqueous environments, so it is unlikely that the total activity would be released to the environment. The seeds most likely would be captured in sewage sludge and eventually disposed or decayed in place.

E. Actions Taken to Recover the Material

Immediately after recognition that the seeds were unaccounted for, the following actions were taken to attempt recovery of the material:

1. Extensive and numerous surveys of the O.R., Recovery Room, Hot Lab, Dosimetry and Physics areas were performed. In addition, extensive and numerous, surveys of all waste and linen pathways through the hospital were performed with negative results.

2. Every loose seed (non-vicryl) in the RSO Hot Lab's inventory was counted and assayed for activity to eliminate the possibility that the seeds might have been mistakenly misplaced with another batch of seeds. The missing seeds were not located.

3. Whenever seeds are no longer clinically useful, they are placed in a decay vial for eventual decay-in-storage release. The currently assigned vial for that purpose (Vial#16) contained over 700 seeds. To eliminate the possibility that the seeds may have been mistakenly placed in the decay vial, all seeds were removed and autoradiographed in batches of 100 seeds. The "hottest" seeds in each lot were assayed for apparent activity. The highest activity seeds discovered by this method had an activity of only 0.38 mCi, well below the expected activity of the missing seeds of approximately 0.5 mCi.

4. The sink traps in both the RSO Hot Lab and O.R.#10 areas were removed and carefully surveyed to determine whether the missing seeds may have been mistakenly lost to the drain. These efforts were negative.

5. An Iodine-125 seed was discovered in the "Red Bag " waste stream by the alarming ratemeter device assigned to this process. However, when it was assayed for activity after recovery, the apparent activity was only 0.08 mCi. The seed was apparently removed from an unrelated previously implanted patient by suction, during a subsequent reoperation, 4-5 months after the original implant date.

6. The Radiation Safety Officer (RSO) conducted extensive interviews with all involved staff, both individually and collectively, to ensure that all policies and procedures were followed , that appropriate surveys and inventories were performed, and to see if there was any evidence that might point to the actual pathway of loss and lead to the subsequent recovery of the seeds.

7. Many of these interviews and surveys were repeated with NRC and State personnel in attendance during their inspection following this incident.

F. Procedures and Methods that Have Been or Will Be Adopted to Ensure Against Recurrence of the Loss of Licensed Materials

1. A cabinet lock will be installed in the RSO Hot Lab to ensure that only authorized individuals have access to the Iodine-125 source inventory contained within the Lab.

2. After a physical inventory is performed, Iodine-125 storage vials will be placed in sealed bags that are initialed and dated by the person performing the inventory. Any evidence of tampering between use will be immediately reported to the Radiation Safety Office and an inventory will be promptly performed to confirm the current activity and number of seeds.

3. Source counts will be performed in the O.R. before and after each free seed procedure to confirm the expected inventory. In addition, a counting jig will be developed to assist the dosimetrist in keeping a running inventory during free seed implantation procedures.

4. Medium activity, temporary implant seeds will not be reused for permanent implants until the Radiation Safety Office has performed a physical count to confirm the vial inventory. In addition, a leak test to confirm seed integrity and a partial batch assay to confirm expected seed activity will be performed before releasing them for permanent implant.

This concludes YNHH's written report as required by paragraph (b) of 10 CFR 20.2201. YNHH reserves the right to revise and extend this report, if further discovery or substantive information becomes available as required in paragraph (d) of 10 CFR 20.2201. If you have any further questions concerning this incident or report, please contact the RSO at (203) 785-2950.

Sincerely,

Michael J. Bohan
Medical/Health Physicist/RSO

Norman G. Roth
Vice President

cc: Robert Lange, Ph.D., Chairman, Radiation Safety Committee
Ravinder Nath, Ph.D., Director, Radiological Physics
George Pavlonnis, III, Radiation Control Physicist, State of Connecticut, Dept. of Environmental Protection, Bureau of Air Management

SEP 24 1996

Docket No. 030-01244
EA No. 96-321

License No. 06-00819-03

Norman G. Roth, Vice President
Yale-New Haven Hospital
20 York Street
New Haven, Connecticut 06504

SUBJECT: INSPECTION NO. 030-01244/96-001

Dear Mr. Roth:

On August 12 and 13, 1996, Neelam Bhalla and Ihor Czerwinskyj of this office conducted a safety inspection at the above address of activities authorized by the above listed NRC license. Additionally, the inspectors conducted a telephone interview on August 19, 1996 with one of your staff members who was unavailable during the inspection. The inspection was limited to a review of the circumstances surrounding the loss of five iodine-125 seeds at your hospital sometime between March 6, 1996 and July 26, 1996 and reported to the NRC Operations Center on August 6, 1996. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. The findings of the inspection were discussed with you and other members of your staff at the conclusion of the inspection.

With regard to your iodine-125 brachytherapy program, the following areas were examined during the inspection: ordering, receiving, inventory, security and storage, cleaning and leak testing, surveys of the patient and areas of use, and the incident chronology of the lost sources. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, it appears that your activities were not conducted in full compliance with NRC requirements. A Notice of Violation is enclosed. Each violation is classified at a Severity Level IV violation in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy) NUREG 1600 and due to the limited radiological significance in this instance. Similar violations of this type in the future may result in additional enforcement action.

The weaknesses in your implant source inventory procedures, the significance of the issues, and the need for lasting and effective corrective action were discussed with members of your staff at the inspection exit meeting on August 13, 1996.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your

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response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

Please use the enclosed self-addressed green envelope when you respond to this letter to assist us in the timely processing of your response. In accordance with Section 2.790 of NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and your reply will be placed in the Public Document Room (PDR). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that your desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public. The responses directed by this letter and the accompanying Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

Your cooperation with us is appreciated.

Sincerely,

ORIGINAL SIGNED BY:
P. K. Thompson
for Mohamed M. Shanbaky, Ph. D., Chief
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety

Docket No.: 030-01244
License No.: 06-00819-03

Enclosures:

1. Notice of Violation
2. NUREG 1600 (Enforcement Policy)

cc w/enclosures:
Michael Bohan, Radiation Safety Officer
State of Connecticut

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OFFICE	DNMS/RI	N	DNMS/RI					
NAME	ICzerwinskyj/IMC		NBhalla		MShanbaky			
DATE	08/22/96		~~08/29/96~~ 9-23-96		08/23/96		08/ /96	

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NOTICE OF VIOLATION

Yale-New Haven Hospital
New Haven, Connecticut

Docket No. 030-01244
License No. 06-00819-03

During an NRC inspection conducted on August 12 and 13, 1996, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy), NUREG 1600, the violations are listed below:

A. 10 CFR 20.1802 requires that the licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Contrary to the above, the licensee did not control and maintain constant surveillance of licensed material that was in a controlled or unrestricted area and that was not in storage. Specifically, sometime between March 6, and July 26, 1996 the licensee lost five iodine-125 seeds of 0.5 millicurie each.

This is a Severity Level IV violation (Supplement IV).

B. 10 CFR 35.406 (b) requires, in part, that the licensee shall make a record of brachytherapy source use, which must include the names of the individuals permitted to handle the sources.

Contrary to the above the licensee did not make a record which included the names of the individuals permitted to handle the brachytherapy sources. Specifically, the name of the dosimetrist who signed out, and removed from storage, iodine-125 sources on July 26, 1996, was not included on the licensee's record of individuals permitted to handle the sources.

This is a Severity Level IV violation (Supplement VI)

Pursuant to the provisions of 10 CFR 2.201, Yale-New Haven Hospital is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator, Region I, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

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Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

Yale New Haven Hospital
20 YORK STREET, NEW HAVEN, CT 06504

Michael J. Bohan, Radiation Safety Officer
Radiological Physics - WWW 204
(203) 785-2950

October 26, 1996

Docket No.: 030-01244
License No.: 06-00819-03
EA No.: 96-321
Inspection No.: 96-001

Mohamed M. Shanbaky, Ph.D., Chief
Nuclear Materials Safety Branch 1
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Subject: Reply to a Notice of Violation - Inspection No. 030-01244/96-001

Dear Dr. Shanbaky:

Yale-New Haven Hospital (YNHH) submits the following response to the Notice of Violation dated September 24, 1996:

Restatement of Violation A.

10 CFR 20.1802 requires that the licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.

Contrary to the above, the licensee did not control and maintain constant surveillance of the licensed material that was in a controlled or unrestricted area and that was not in storage. Specifically, sometime between March 6, and July 26, 1996 the licensee lost five Iodine-125 seeds of 0.5 milliCurie each.

1. Reason for the Violation

Please refer to YNHH's letter reporting the loss to the NRC, dated September 6, 1996.

2. Corrective Steps that Have Been Taken and the Results Achieved

Corrective actions numbers 2, 3, & 4, detailed in Section F. of the September 6, 1996 report to the NRC, have been implemented. However, the counting jig mentioned in item 3 is currently in the design stage and under development.

3. Corrective Steps that will be Taken to Avoid Further Violations

Cabinet locks will be installed in the Radiation Safety Office Hot Lab to ensure the Iodine-125 source inventory is accessible to authorized individuals only.

4. Date when Full Compliance will be Achieved

The cabinet locks should be installed by November 30, 1996 and the counting jig will be implemented as soon as it can be designed and fabricated.

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Restatement of Violation B.

10 CFR 35.406 (b) requires, in part, that the licensee shall make a record of brachytherapy source use, which must include the names of the individuals permitted to handle the sources.

Contrary to the above the licensee did not make a record which included the names of the individuals permitted to handle the brachytherapy sources. Specifically, the name of the dosimetrist who signed out, and removed from storage, Iodine-125 sources on July 26, 1996, was not included on the licensee's record of individuals permitted to handle the sources.

1. Reason for the Violation

A record of authorized individuals was available, however, it had not been updated to reflect the addition of newly authorized personnel

2. Corrective Steps that Have Been Taken and the Results Achieved

A new record of authorized individuals was completed which includes all new personnel.

3. Corrective Steps that will be Taken to Avoid Further Violations

The Radiation Safety Office will be more careful in the future to ensure that the list is updated when new personnel are authorized to remove licensed materials from storage.

4. Date when Full Compliance was Achieved

A new list was prepared on August 14, 1996 and it was signed and initialed by all authorized individuals by August 30, 1996. A copy of the new list is attached to this letter.

This completes YNHH's reply to the Notice of Violation dated September 24, 1996. If there are any further questions, please contact the Radiation Safety Officer at (203) 785-2950.

Sincerely,

Michael J. Bohan
Medical Health Physicist/RSO

Norman G. Roth
Vice President

Attachment: 1 page

cc: Robert Lange, Ph.D., Chairman, Radiation Safety Committee
Ravinder Nath, Ph. D., Director, Radiological Physics
George Pavlonnis, III, Radiation Control Physicist, State of Connecticut, Department of Environmental Protection, Bureau of Air Management

Hospital --- Radiation Safety Office

Individuals Authorized For Radioactive Materials Use

ent: Therapeutic Radiology

Name	Job Title	Signature	Initials
Agostinelli, Al G.	Med. Physicist		AGA
Bohan, Michael	R.S.O.		MJB
Bond, James E.	Med. Physicist		JEB
Dodson, Anita	Dosimetrist		AD
Doolittle, Marlene	Dosimetrist		MLD
Kimmett, James	Dosimetrist		JK
Liu, Lizhong	Med. Physicist		L.C.
Nath, Ravinder	Director		RN
Peschel, Charlene	Dosimetrist		CP
Picone, James	Dosimetrist.		
Pourang, Rahman	Med. Physicist		RP
Richardson, Rick	H.P. Tech.		R.Y.R
Stanton, Richard (Ted)	Dosimetrist		RTS
Trumpore, Sharon H.	Chief Dosim.		H.S.T
Varela, Michael A.	Asst. R.S.O.		MAV

The individuals named above are authorized by the Yale-New Haven Hospital Radiation Safety Office to handle sealed brachytherapy sources for clinical and/or research purposes. These individuals have been trained by the RSO in the appropriate radiation safety and inventory requirements of the hospital's license.

Date: 14-Aug-96

Signed By: _____

Michael J. Bohan, R.S.O.