NRC FORM 374
(7-94)

U.S. NUCLEAR REGULATORY COMMISSION

MATERIALS LICENSE

Amendment No. 44

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

303338

Licensee	
1. Lester E. Cox Medical Center	In accordance with letters dated February 17, 1997 3. License Number 24-01143-06 is amended in its entirety to read as follows:
2. 1423 N. Jefferson Springfield, MO 65802	4. Expiration Date March 31, 1995
	5. Docket or Reference No. 030-09784

6. Byproduct, Source, and/or Special Nuclear Material	7. Chemical and/or Physical Form	8. Maximum Amount that Licensee May Possess at Any One Time Under This License
A. Any byproduct material identified in 10 CFR 35.100	A. Any radiopharmaceutical identified in 10 CFR 35.100	A. As needed
B. Any byproduct material identified in 10 CFR 35.200	B. Any radiopharmaceutical identified in 10 CFR 35.200	B. As needed
C. Any byproduct material identified in 10 CFR 35.300	C. Any radiopharmaceutical identified in 10 CFR 35.300	C. As needed
D. Any byproduct material source identified in 10 CFR 35.400	D. Any brachytherapy identified in 10 CFR 35.400	D. As needed
E. Any byproduct material identified in 10 CFR 31.11	E. Prepackaged Kits	E. As needed
E. Iridium-192	F. Sealed Sources (Byk Mallinckrodt Model CI LBV)	F. Two sources not to exceed 12 curies each

110118

D/1

9704140049 970328
PDR ADOCK 03009784
C PDR

COPY

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SUPPLEMENTARY SHEET

License Number
24-01143-06

Docket or Reference Number
030-09784

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9. Authorized Use:

A. Medical use described in 10 CFR 35.100.

B. Medical use described in 10 CFR 35.200.

C. Medical use described in 10 CFR 35.300.

D. Medical use described in 10 CFR 35.400 and survey instrument calibration.

E. In vitro studies.

F. One source to be used in a Nucletron Corporation MicroSelectron-HDR remote afterloading brachytherapy unit for interstitial and intracavitary radiotherapy. Once source in its shipping container to be in possession of the license as necessary for replacement of source in the irradiation device. The licensee may possess 24 Ci iridium-192 (not to exceed 12 Ci per source) for use in the Nucletron Corporation Micro Selection-HDR, provided the individual source activity does not exceed 10 Ci at the time of installation, and the source is installed by an authorized individual.

CONDITIONS

10. Locations of Use:

A. Lester E. Cox Medical Center-North
1423 N. Jefferson
Springfield, MO 65802

Lester E. Cox Medical Center-South
3801 South National Avenue
Springfield, MO 65807

Cox Health Center South
Plaza II, Building II, Suite 100
3850 South National
Springfield, MO 65807

B. U.S. Medical Center for Federal Prisoners, 1900 West Sunshine, Springfield, MO, (one time use only), in accordance with letter dated November 10, 1994.

11. Radiation Safety Officer: William Nalesnick, Ph.D.

12. A. Authorized Users:

A. L. R. Brent, M.D., for material in 10 CFR 35.100, 35.200, 35.300, 35.400 (excluding survey instrument calibration) and 31.11.

12. Authorized Users (Continued)

B. P. S. Quinn, M.D., for material in 10 CFR 35.100, 35.200, and 31.11.

C. D. E. Nelson, M.D., for material in 10 CFR 35.100, 35.200, and 31.11.

D. H. C. Krahn, M.D., for material in 10 CFR 35.100, 35.200, 35.300, and 31.11.

E. J. D. Rogers, M.D., for material in 10 CFR 35.400 (excluding survey instrument calibration) and iridium-192 in remote afterloading brachytherapy unit.

F. John Clouse, M.D., for material in 10 CFR 35.300, 35.400 (excluding survey instrument calibration), 31.11 and iridium-192 in remote afterloading brachytherapy unit.

G. James R. Wolski, M.D., for material in 10 CFR 35.100, 35.200, 35.300, and 31.11.

H. William Ludwig, M.D., for material in 10 CFR 35.100, 35.200, and 31.11.

I. Kimberly A. Prater, M.D., for material in 10 CFR 35.100, 35.200, and 31.11.

J. Anne Smid, M.D., for material in 10 CFR 35.100, 35.200, and 31.11.

K. M. A. Albritton, M.D., for material in 10 CFR 35.400 (excluding survey instrument calibration) and iridium-192 in remote afterloading brachytherapy unit.

L. Ashoka Bhargava, M.S., for material in 10 CFR 35.400 for survey instrument calibration only.

M. David M. Sullivan, M.D., for material in 10 CFR 35.100 and 35.200.

N. Norman B. Ely, M.D., for material in 10 CFR 35.100, 35.200 and 35.300.

O. John Ritter, M.D., for material in 10 CFR 35.100 and 35.200.

B. Brachytherapy Physicist: William Nalesnick, Ph.D.

13. A. Sealed sources and detector cells shall be tested for leakage and/or contamination at intervals not to exceed 6 months or at such other intervals as specified by the certificate of registration referred to in 10 CFR 32.210.

MATERIALS LICENSE
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License Number
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13. (Continued)

B. In the absence of a certificate from a transferor indicating that a leak test has been made within 6 months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.

C. Sealed sources need not be leak tested if:

(i) they contain only hydrogen-3; or

(ii) they contain only a radioactive gas; or

(iii) the half-life of the isotope is 30 days or less; or

(iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or

(v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transferred to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.

D. The leak test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission in accordance with 10 CFR 30.50(b)(2), and the source shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within 5 days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region III, ATTN: Chief, Nuclear Materials Safety Branch, 801 Warrenville Road, Lisle, Illinois 60532-4351. The report shall specify the source involved, the test results, and corrective action taken.

E. Tests for leakage and/or contamination shall be performed by the licensee or by other persons specifically licensed by the Commission or an Agreement State to Perform such services.

14. A. Access to the rooms housing the MicroSelectron-HDR afterloading brachytherapy device shall be controlled by a door at each entrance.

B. The entrance to the irradiation room shall be equipped with an electrical interlock system that will cause the source to return to the shielded position immediately upon opening of the entrance door. The interlock system shall be connected in such a manner that the source cannot be placed in the irradiation position until the entrance door is closed and the source "on-off" control is reset at the control panel.

C. Electrical interlocks on the entrance door to the irradiator room shall be tested for proper operation at least once each day of use.

D. In the event of malfunction of the door interlock, the irradiation device shall be locked in the "off" position and not used, except as may be necessary for repair or replacement of the interlock system, until the interlock system is shown to be functioning properly.

15. Prior to initiation of a treatment program, and subsequent to each source exchange using the MicroSelectron-HDR remote afterloading brachytherapy devices, radiation surveys and tests shall be performed in accordance with the following:

A. A radiation survey shall be made of:

(1) The irradiator source housing, with the source in the shielded position. The maximum radiation levels at 10 centimeters from the surface of the main source safe shall not exceed 1 milliroentgen per hour.

(2) All areas adjacent to the treatment room with the source in the "irradiation" position. The survey shall clearly establish:

(a) That radiation levels in restricted areas are not likely to cause personnel exposure in excess of the limits specified in 10 CFR 20.101 (10 CFR 20.1201).

(b) That radiation levels in unrestricted areas do not exceed the limits specified in 10 CFR 20.105(b) (10 CFR 20.1301).

16. The following shall be performed only by manufacturer's representatives or persons specifically authorized by the Commission or an Agreement State to perform such services:

A. Installation and replacement of the sealed sources contained in the MicroSelectron-HDR afterloading brachytherapy device(s).

B. Any maintenance or repair operations on the irradiator involving work on the source head, the source driving unit, or other mechanism that could expose the source, reduce the shielding around the source, or compromise the safety of the unit and result in increased radiation levels.

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030-09784

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17. Pursuant to Title 10, Chapter 1, Code of Federal Regulations, Part 40, "Domestic Licensing of Source Material," the licensee is authorized to possess, use, transfer, and import up to 999 kilograms of depleted uranium contained as shielding material in the molybdenum-99/technetium-99m generators authorized by this license.

18. The licensee shall assay all patients doses prior to administration. Doses which differ from the prescribed dose by more than 10 percent shall not be used.

19. In addition to the possession limits in Item 8, the licensee shall further restrict the possession of licensed material to quantities below the minimum limit specified in 10 CFR 30.35(d) for establishing decommissioning financial assurance.

20. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below, except for minor changes in the medical use radiation safety procedures as provided in 10 CFR 35.31. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.

    A. Application dated December 22, 1989; and

    B. Letters dated September 24, 1991, November 27, 1991, December 4, 1991, May 4, 1994, November 10, 1994, February 18, 1995 (with attachments), June 26, 1995, February 17, 1997 (two letters) and March 19, 1997.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Date 3/28/97

By _____
Nuclear Materials Licensing Branch, Region III

58

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 02230
Status Code: 2
Fee Category: 7C 2B
Exp. Date: 19950331
Fee Comments: CODE 23
Decom Fin Assur Reqd: N

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
   Applicant/Licensee: LESTER E. COX MEDICAL CENTER
   Received Date: 970219
   Docket No: 3009784
   Control No.: 302338
   License No.: 24-01143-06
   Action Type: Amendment

2. FEE ATTACHED
   Amount: 440
   Check No.: 14593

3. COMMENTS

Signed D. Hersey
Date 2-20-97

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /__/)

1. Fee Category and Amount: 7C 2B #440

2. Correct Fee Paid. Application may be processed for:
   Amendment ____
   Renewal ____
   License ____

3. OTHER ____

Signed SC
Date 3/24/97

MAR 0 3 1997

Log Feb 11 III
Remitter
Check No. 14593
Amount #440
Fee Category 7C 2B
Type of Fee AMD
Date Check Rec'd 3/24/97
Date Completed 3/24/97
By: SC

RADIATION ONCOLOGY

COX MEDICAL PLAZA II, SUITE 100
3850 SOUTH NATIONAL AVENUE
SPRINGFIELD, MISSOURI 65807
417/269-6115
FAX 417/269-6979
www.coxnet.org

February 17, 1997

UNITED STATES
NUCLEAR REGULATORY COMMISSION
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Re: License #24-01143-06
Ammendment to:
1) Consolidate Brachytherapy Storage Facilities
2) Relocate HDR facility at Cox South Campus

Dear Sir/Madam:

We wish to amend the above license to allow us to (1) consolidate our Cesium Storage facilities at Cox North and Cox South to a new location on the Cox South Campus; and (2) to relocate our remote high dose rate afterloader to a new facility at Cox South. We will discontinue our Brachytherapy program at Cox North.

All physical aspects of the HDR relocation will be performed by trained Nucletron personnel in accordance with our previous HDR License Ammendment.

The new room for the HDR has already been prepared by Nucletron and we can proceed with the relocation as soon as we receive your approval.

Therefore, we would be most appreciative if you can expedite our request so that we can close our old facilities.

If you have any further questions relative to this ammendment, please contact our physicist, Bill Nalesnik at 417-269-8935.

Sincerely,

Steve Edwards/ch

Steve Edwards
vice-president

Pm: 2-18-97

RADIATION ONCOLOGY
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February 17, 1997

UNITED STATES
NUCLEAR REGULATORY COMMISSION
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Re: License #24-01143-06
Ammendment to:
1) Consolidate Brachytherapy Storage Facilities
2) Relocate HDR facility at Cox South Campus

Dear Reviewer:

I am submitting an ammendment request to relocate our Cesium Storage facility and our HDR facility to a newly constructed Radiation Oncology Facility on our South Campus.

The radiation oncology facility at the Cox North facility will be closed and we will no longer perform brachytherapy procedures there. We are presently storing Cs-137 and a Sr-90 eye applicator at that site. At our last NRC inspection, the inspector indicated that we could move these sources to our existing storage facility at Cox South for storage. I will be doing this for security reasons, following the appropriate DOT guidelines.

We plan to relocate the remote afterloader in a linear accelerator vault in the new facility. All aspects of the move and the appropriate testing will be performed by Nucletron engineers and the recalibration and validation of proper clinical operation will be performed by myself.

Per my earlier discussion with a reviewer on call, I have included only those aspects of the relocation which pertain to the physical site. There are no other changes relative to our original license ammendment application and our quality management program so I refer you to this for the remainder of the documentation.

Everything is in place for the move with the exception of your approval. If possible, I would like you to expedite this request.

If you have any further questions, I can be reached at 417-269-3537.

Thank you,

Bill Nalesnik

William J. Nalesnik

Ammendment item 1: Elimination of Old Brachytherapy Source Storage areas at Cox North and Cox South and Relocation to New Facilities at Cox South

We wish to discontinue the use of the brachytherapy source storage areas at the following locations:

Cox Health Center North
Radiation Therapy Department
1420 North Jefferson
Springfield, Missouri 65802

and

Cox Health Center South
Radiation Therapy Department
3801 South National
Springfield, Missouri 65807

Our New Storage Area will be located on the Cox Health Center South Facility:

Cox Health Center South
Plaza II Building II Suite 100
3850 South National
Springfield, Missouri 65807

The new storage room is located in the basement inside of our mold/block fabrication area (Room 002) and is designated as Hot Lab (Room 003) on our architectural drawings. The hot lab measures 5'10" by 6'0".

The room will be used to store our complement of Cs-137 Sources from the two facilities and a Sr-90 eye applicator. These items are not in clinical use at this time. In addition, The hot lab will be used as a temporary storage area for our HDR sources (12 Ci max). These sources will be stored in the original shipping containers.

A diagram of the hot lab and environs is shown in figure 1. The Cs-137 sources will be stored in a dedicated source storage safe and L-Block System which, from previous surveys will maintain the exposure rate to less than 0.025 mR/hr outside of the storage area. Should this not be the case, supplemental shielding will be used to insure compliance. Although the Sr-90 source is packed in its original container, there still are significant radiation levels at the surfaces. Supplemental lead shielding will be used to reduce these levels in accordance with ALARA.

As indicated, the Hot Lab is located within our block lab in a basement area that has very little traffic. The only other occupied area is the tumor registry adjacent to the block room. The block room/hot lab is located under the main entrance hall to the building. Because of the relative location, there is very little foot traffic in this area. There is no permanent occupancy in the entire entryway. The southeast portion of the hot lab is adjacent to unexcavated ground. The maintenance area is presently unoccupied and used for storage of equipment. There are no plans for permanent occupancy at this time or in the immediate future.

The entrance to the hot lab will be posted in accordance with the requirements of 10CFR20. and surveys will be made to assure compliance with . Because of the nature of our storage requirements all surrounding areas will be considered suitable for occupancy by the general public. The hot lab will be kept locked at all times when not occupied.

Release of vacated hot labs at Cox North and South:

The sources will be inventoried at the time of removal and reinventoried at the time of relocation. The hot labs will be surveyed for residual radioactivity with a GM survey meter to ensure that all sources have been removed and that there is no remaining activity. Records of the source transfers and surveys will be maintained for review by the NRC.

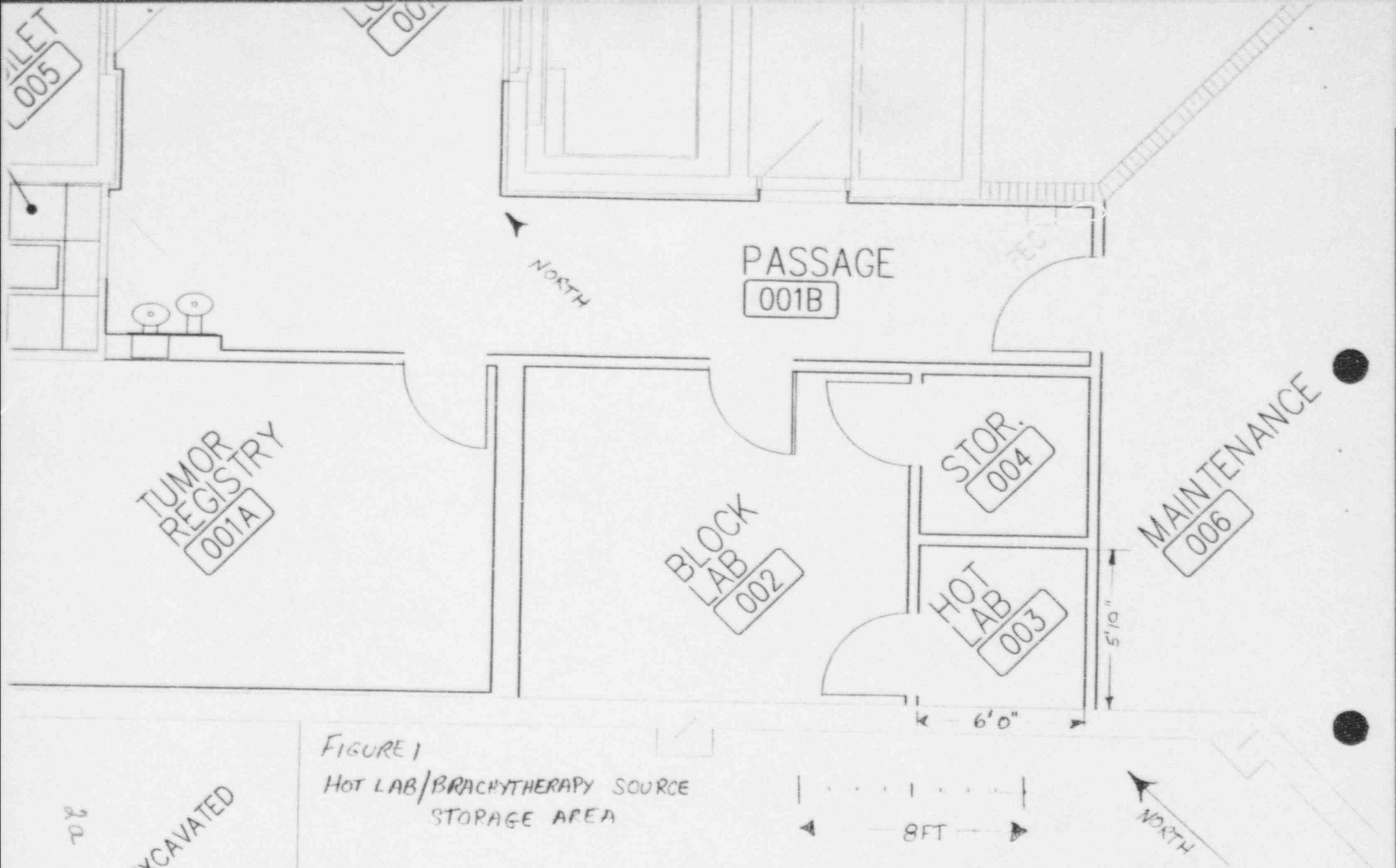

FIGURE 1
HOT LAB/BRACHYTHERAPY SOURCE STORAGE AREA

PREPARED 2/14/17 ugn
License # 24-01143-06

Ammendment item 2: Relocation of HDR to new facilities.

We wish to relocate our existing Nucletron High Dose Rate Afterloading unit from its present location in the linear accelerator vault at the Radiation Therapy Center at Cox South to a new location in the Plaza II building on the Cox South Campus:

Cox Plaza II, Suite 100
3850 South National
Springfield, Missouri 65807

The Plaza II building is a separate building on the Cox South which is physically connected to the main hospital by an enclosed bridge/walkway.

Source deliveries and shipments will be made directly to and from our department in Plaza II affording us better control over the sources. Uninstalled sources and new sources will be secured in our basement hot lab in the original shipping containers until they can be processed.

All aspects of the relocation of the machine will be done by qualified Nucletron personnel under our present service contract with Nucletron.

A. Dedicated HDR room (Figure 2)

The HDR unit will be installed in one of our 18 MV linear accelerator vaults designated as room 137 on our facility drawings. This room is located at the east end of the building at the far end of the department. Access to this area is restricted to personnel and patients. The external walls of the vault are surrounded by a driveway which is located approximately 10 feet from the walls at the end of an incline. The floor of the vault is at least 10 feet from ground level. An infrequently used driveway to the basement is located below the level of the vault along the north wall. The vault is a single story structure with no occupied space directly above the roof. The roof is fabricated from concrete ranging in thickness from approximately 2.5 to 5 feet. There is no occupied space below the vault. The unit is physically connected to the building on the west side along the maze wall. Radiation surveys of occupied areas of the building above the vault with the 18 MV linear accelerator beam oriented in such a way to be aimed directly at the areas in question show dose levels slightly above background.

The control area is located along the north wall of the building. This wall is composed of 3.5 feet of concrete (measured density = 145 lbs/ft^3) and was designed as a secondary barrier for the accelerator. The maze wall is located on the west side of the vault and serves as a primary/secondary barrier. The combined thicknesses of the maze walls is approximately 6.5 feet of concrete plus approxiately 6 inches of steel plate on the interior wall.

The room entry door is a standard shielded neutron door manufactured by New England Nuclear. It consists of approximately one inch of lead shielding, 1/2 inch of steel plate and 4 inches of borated polyethylene. Because of the nature of the automatic door operating mechanism the room cannot be locked without risking damage to the unit. However, the HDR unit will be locked in the interior closet designated as 137A on the room diagram when it is not in use.

Because of the thickness of the room shielding (all exposed walls greater than 15 inches concrete) and the historically low workload of the unit (2-3 patient treatments/month) all areas may be considered as unrestricted, although access to all areas is strictly controlled.

A linear accelerator also occupies the same vault. A dual interlock switch which is connected to the door interlock mechanisms for both unitsis provided. This prevents both units from being operated simultaneously.

B: Patient observation system and intercom:

The vault is equiped with a dual TV viewing system and intercom consisting of a fixed panoramic TV camera and a TV camera with an adjustable pan/zoom feature. Dual intercoms are also present. Either system can serve as the primary viewing/intercom system. In the unlikely situation that both units are inoperative, patient treatments will be suspended until either repairs or another viewing/intercom system is installed.

C. Access control:

The only means of access to the vault is the shielded entry door.

C.1 System operation and response to interruption: A plunger type electrical interlock switch is located inside the door jamb. When the HDR source is extended, opening the door will activate the door interlock causing the source to retract immediately. The unit is not able to be reactivated from the control console until the the interlock control is manually reset with a key.

C.2 Failure of interlock system: In the event of a failure of the interlock system patient treatments will be suspened. The HDR unit will be locked in the "off" position and not used, except as may be be necessary for repair or replacement of the interlock system, until the interlock system is shown to be operating properly.

C.3 Area controls: The vault is situated in such a way that access to the area is restricted to patients and personnel. During operation the entry to the vault is under constant observation.

When not in use, the HDR unit will be locked in a closet in the accelerator vault with the key placed in a secure location.

The entry to the vault and the storage closet will be posted with standard radiation warning signs as described in 10CFR20.

Emergency procedures and a call list will be posted outside entrance to the vault.

An "in use" light above the door and a remote Prim-alert monitor will serve to indicate operation of the unit.

C.4 Prevention of simultaneous operation of linear accelerator and HDR: Simultaneous operation of the two radiation units will be prevented by an interlock system attached to the entry door interlocks. The linear accelerator and HDR have separate plunger type interlocks. These are wired to an external two-way key switch in such a way that operation of only one unit is possible depending on the position of the key switch.

C.5 Security of console keys: When not in use, the two console key switches will be removed from the cointrol unit and placed in a secure place.

D. Permanent Radiation Monitor: A PRIMALERT II radiation monitor will be installed in the treatment vault in such a way that it will be visible to an individual entering the room while still in the maze.

The PRIMALERT will be coupled to a slave monitor located outside of the room at the entry door. In addition, the PRIMALERT will be attached to a battery operated back-up power supply which operates from the mains, independent of the power supply to the afterloader.

The operation of the PRIMALERT will be checked each day of treatment before the first treatment by utilizing the HDR source during the preliminary warm-up procedure. Records of the monitor checks will be maintained for a period of three years.

In the event of a failure or intermittent problems with the PRIMALERT system, the unit will be repaired promptly or replaced. Individuals entering the treatment room will be required to use a survey instrument to monitor for any malfunction of the the source exposure mechanism that may result in an exposed or partially exposed source. The survey instrument will be checked with a dedicated check source on each day of use.

E. Location and shielding verification:

The HDR will be relocated in linear accelerator room 137. The accelerator vault has been designed to provide shielding for an 18 Mev linear accelerator such that the exposure to a member of the general public will be less than 10 mR/week for normal workloads. Our current experience indicates that this also the case for our occupationally exposed individuals.

The vault is located at the end of the building and is surrounded by driveways and other areas not occupied by members of the general public on a continuing basis. A driveway to a basement entrance below the therapy area is located between the two vaults. The accelerator vault is located on solid ground. There is no occupancy directly above the roof. Surveys with the accelerator in various orientations confirm the adequacy of the shielding.

With the accelerator operating at 18 MV and a dose rate of 600 rads/min to isocenter with a 40x40 cm beam directed vertically into a 50x50 cm water phantom, the following exposure rates have been recorded and maximum weekly exposure rates have been calculated for a workload of 40 patients/week.

Location	mR/hr	mR/week
A. Control Console	0.137 mR/hr	.150 mR/week
B. Entry Door	0.750 mR/hr	.825 mR/week
C. Exterior window in Control Area	0.240 mR/hr	.264 mR/week
D. Ductwork above door	2.9 mR/hr	3.2 mR/week

A maximum of 50 mR/hr was recorded on the (unoccupied) roof above the unit with the beam directed vertically directly at the roof.

Surveys in the areas of the building with the unit directed directly at the area in question indicated dose rates comparable to background.

Thus, the vault provides adequate protection for an 18 MV linear accelerator and as such should provide adequate protection for an HDR unit with less radiation output at a lower energy.

E.1 HDR Shielding Calculations: The following calculations were performed to document the anticipated dose rates from the HDR unit. Since the dose rates will be low, the source locations for each calculation were taken to be directly adjacent to the concrete walls. In the case of the maze, the source was assumed to be at the end of the maze, 19 feet from the room entry door.

Estimated exposure rates for a 12 Curie Ir-192 source

Location	Distance feet	Unshielded Dose Rate	Shielding Thickness	Trans. factor	Dose Rate mR/hr
A. Control Console	3.5'	4.9 R/hr	3.5'	5.5×10^{-8}	2.7×10^{-4}
B. Entry Door	19.0'	0.167 R/hr	1" Pb 0.5" Fe	0.027	4.5
C. Roof	10.0'	0.605 R/hr	2-4'	8.0×10^{-8}	0.074
D. Simulator Room	2.5'	9.690 R/hr	2.5'	1.0×10^{-5}	0.075
E. Simulator Room	13.0'	0.359 R/hr	6.5' +steel	5.0×10^{-14}	----

Exposure rate constant for Ir-192: 4.69 R cm^2 $mCi^{-1}hr^{-1}$
Tenth value layer for concrete : 14.9 cm
Tenth value layer for steel : 4.3 cm
Tenth value layer for lead : 2.0 cm

These calculations represent a worst case scenereo for an unshielded source. Typically the source will be exposed in the area shown in figure 2 behind the maze wall, so the entry door and simulator room will be exposed only to scattered radiation.

Our present workload is 2-3 cases per month, so the monthly workload will be less that 1 hr. We do not forsee a signifigant increase in this workload in the forseeable future. Our typical treatment regime requires that we deliver a dose of between 300-500 rads at a distance of 1 cm from the source.

After the unit is relocated and the new source installed, the environs will be surveyed in accordance with the committments made in our original license application.

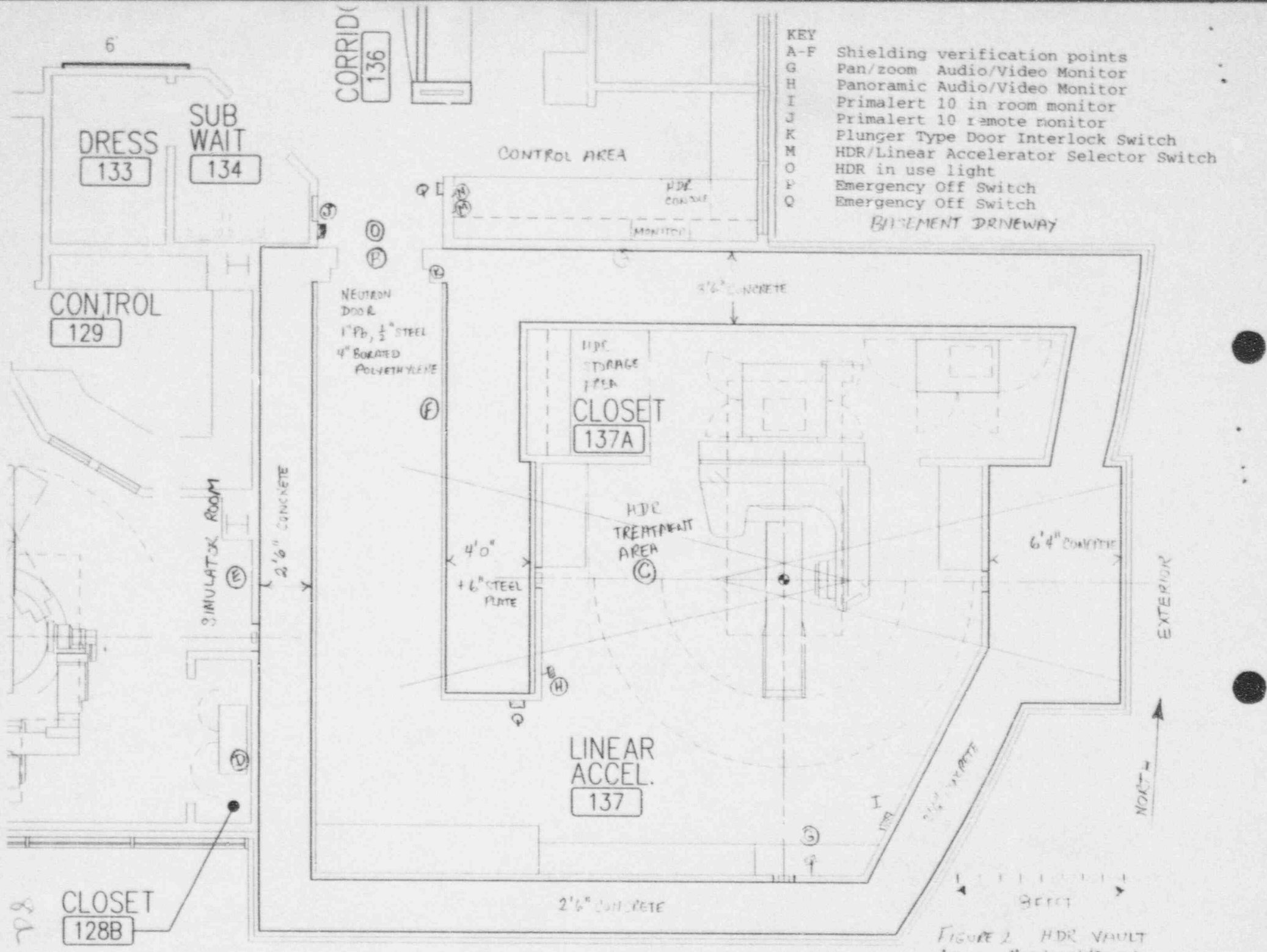

FIGURE 2 HDR VAULT

License # 24-01143-06

MAR 28 1997

William Nalesnick, Ph.D.
Radiation Safety Officer
Lester E. Cox Medical Center
1423 N. Jefferson
Springfield, MO 65802

Dear Dr. Nalesnick:

Enclosed is Amendment No. 44 to your NRC Material License No. 24-01143-06 in accordance with your request.

Please be advised that the enclosed amendment authorizes (1) the consolidation of your cesium storage facilities at Cox North and Cox South to a new location on the Cox South Campus; and (2) the relocation of your remote high dose rate (HDR) afterloader to a new facility at Cox South. Also, please note that License Condition No. 10.A has been changed to add the following new location of use: Cox Health Center South, Plaza II, Building II, Suite 100, 3850 South National, Springfield, Missouri. However, we cannot, at this time, authorize you to free release your former nuclear medicine facilities and hot laboratories (HDR afterloader and other brachytherapy uses and storage areas, and cesium use and storage areas) at Cox North and Cox South because we need additional information. You must submit a closeout survey of the areas where these byproduct materials were used and that survey must receive NRC approval in order for those areas to be released for unrestricted use. (See enclosed "Information that Should be Submitted to the NRC Staff for Decommissioning and Termination of Licensed Facilities" with four attachments.) Please submit the requested information as additional information, within 30 days, to Control No. 302338 to preclude an additional fee.

Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region III office so that we can provide appropriate corrections and answers.

Please be advised that your license expires at the end of the day, in the month, and year stated in the license. Unless your license has been terminated, you must conduct your program involving byproduct materials in accordance with the conditions of your NRC license, representations made in your license application, and NRC regulations. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers: Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.

302338

2. Notify NRC, in writing, within 30 days:

   a. When an authorized user or Radiation Safety Officer permanently discontinues performance of duties under the license or has a name change; or

   b. When the licensee's mailing address changes (no fee is required if the location of byproduct material remains the same).

3. In accordance with 10 CFR 30.36(b) and/or license condition, notify NRC, promptly, in writing, and request termination of the license:

   a. When you decide to terminate all activities involving materials authorized under the license; or

   b. If you decide not to complete the facility, acquire equipment, or possess and use authorized material.

4. Request and obtain a license amendment before you:

   a. Receive or use byproduct material for a clinical procedure permitted under Part 35 but not permitted by your license issued pursuant to this Part;

   b. Permit anyone, except individuals described in 10 CFR 35.13(b) to work as an authorized user under the license;

   c. Change Radiation Safety Officers;

   d. Order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;

   e. Add or change the areas of use or address or addresses of use identified in the license application or on the license; or

   f. Change ownership of your organization.

5. Submit a complete renewal application with proper fee or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations. A license will not normally be renewed, except on a case-by-case basis, in instances where licensed material has never been possessed or used.

In addition, please note that NRC Form 313 requires the applicant, by his/her signature, to verify that the applicant understands that all statements contained in the application are true and correct to the best of the applicant's knowledge. The signatory for the application should be the licensee or certifying official rather than a consultant.

You will be periodically inspected by NRC. Failure to conduct your program in accordance with NRC regulations, license conditions, and representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, or imposition of a civil penalty, or an order suspending, modifying or revoking your license as specified in the General Policy and Procedures for NRC Enforcement Actions, 10 CFR Part 2, Appendix C. Since serious consequences to employees and the public can result from failure to comply with NRC requirements, prompt and vigorous enforcement action will be taken when dealing with licensees who do not achieve the necessary meticulous attention to detail and the high standard of compliance which NRC expects of its licensees.

Sincerely,

Original Signed By
Charles Gill
Nuclear Materials Licensing Branch

License No. 24-01143-06
Docket No. 030-09784

Enclosures:
1. Amendment No. 44
2. Information that Should be Submitted to the NRC Staff for Decommissioning and Termination of Licensed Facilities

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OFFICE	DNMS/RIII	E							
NAME	CFGill:brt								
DATE	03/25/97								

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RADIATION ONCOLOGY

COX MEDICAL PLAZA II, SUITE 100
3850 SOUTH NATIONAL AVENUE
SPRINGFIELD, MISSOURI 65807
417/269-6115
FAX 417/269-6979
www.coxnet.org

March 19, 1997

Charles F. Gill
Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

Re: License #24-01143-06
Control # 30238
Response to NRC request for additional information

Dear Mr. Gill:

This is in response to your letter of March 17 requesting additional information relative to the relocation of the HDR unit.

If you have any further questions, please feel free to contact me at 417-269-8935. I will be away from my office on March 21 and March 22, but I can be reached at 314-822-0267. If no answer, leave a message on the recorder and I will get back with you.

I am very appreciative for all of your help with this project.

Sincerely,

Bill Nalesnik

William J. Nalesnik

pm: 3-19-97

Charles F. Gill
Control No. 302338

Item 1: **Transportation of Device**

The HDR will be transported to the new location without a radioactive source by Nucletron with the assistance of our HDR physicist and other ancillary personnel as required.

Prior to relocation, source will be removed and placed in the original source container and shipping cannister and sealed in the manner prescribed for source return via common carrier. A radiation survey of the container will be performed prior to the move. The container will be placed on a cart and transported to the new facility by the physicist and Nucletron engineer. A survey meter will also be taken along. The route of transport will be through relatively unoccupied hospital corridors and unoccupied service elevators will be used. The source will not be left unattended at any time during the move.

The HDR unit will be loaded onto a cart and secured to prevent unwanted movement. Housekeeping or other hospital personnel may be required for this portion of the move to assist in loading and unloading the HDR. Since unit will be moved without a radiation source, radiation precautions will not be required for this portion of the move. The same route as the source will be followed.

A diagram of the route is attached.

Item 2: **Quality Control Checks on HDR and Ancillary Safety Systems Prior To Reinitiation of Patient Treatments.**

The entire relocation will be performed by NRC licensed Nucletron service representatives. This relocation is, for practical purposes, a new installation. Initial wiring and other room preparation have been performed by Nucletron personnel and/or contractors under Nucletron supervision.

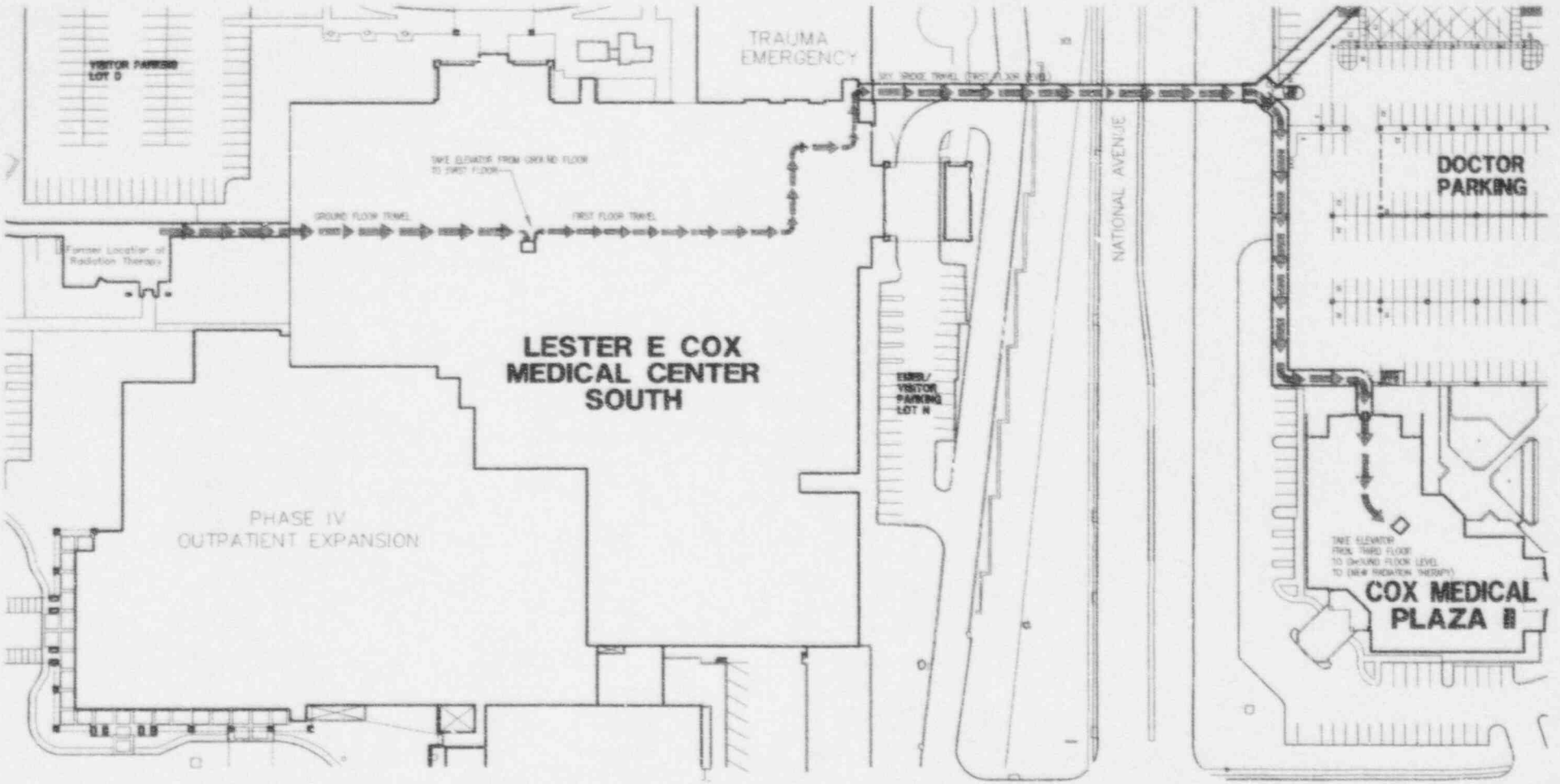
After the unit is reinstalled by Nucletron personnel, a routine 6 month Preventative Maintenance Inspection will be performed to assure proper functioning of the system. This is a standard Nucletron protocol for such a move. A copy of the Nucletron test protocol is attached.

The HDR physicist will be present at this time to observe and assist, since some of the tests common to both Nucletron and physics can best be performed in the room using a non- radioactive dummy source.

After the system installed and functioning, the following safety and operational tests will be performed by our HDR physicist with Nucletron personnel available if time permits:

a. <u>Radiation Safety Survey of HDR Unit:</u>

After a new source is installed, a radiation safety survey is conducted by Nucletron at a number of locations at a distance of 10 cm from HDR source housing with the source in the shielded position to



SITE PLAN

1" = 120'-0"

COX HEALTH SYSTEMS

COX MEDICAL CENTER SOUTH
3801 SOUTH NATIONAL AVENUE
SPRINGFIELD, MISSOURI 65807

NUCLETRON CHECK LIST OF ITEM DONE AT TIME OF RELOCATION

nucletron - Oldelft

MicroSELECTRON-HDR Preventive Maintenance Inspection Checklist

Hospital: _____ Date: _____

Engineer: _____ S/N: _____

Electrical Systems T.U.

Mains Input Voltage	____	VAC
Power One Output Voltage	____	VDC
Telescope Voltage	____	VAC
Battery Voltage	____	VDC
+5 Volts TTL	____	VDC
+5 Volts	____	VDC
+28 Volts	____	VDC
Microcomputer Battery	____	VDC
GND TTL	____	
GND R	____	
Fuses (Mains, MFB)	____	
Shaft Encoder Signal	____	

Electrical System T.C.U.

+28 Volts	____	VDC
+5 Volts TTL	____	VDC
– 12 Volts	____	VDC
+24 Volts	____	VDC
+90 VAC	____	VAC
Microcomputer Battery	____	VDC
Power Indicator (Console)	____	
LCD Illumination Switch	____	

Indicator Panel

Safe LED	____
Treatment LED	____
Emergency Stop Button	____

Reference Opto-Pair

Cleaning	____
+5 Volts	____
Wire IN Signal	____
Wire OUT Signal	____

Indexer

Channel Positioning	____
Applicator Connected Signal	____
Locking Ring Locked Signal	____

System Components

Treatment Unit	____
Console/LCD	____
Junction Box	____
Master Emergency Stop Box	____
Auxillary Emergency Stop Box(s)	____
Cabling/Connectors	____
Applicators/Adapters	____
Source Exchange Tools	____
Source Check Ruler	____
Interconnection Box	____

Operation and Safety Checks

Interface Cable (Ribbon)	____
Component Seating	____
Check Cable	____
Drive Belts	____
Program Mode Non-Standard	____
Program Mode Standard	____
Program Card Operation	____
Treatment Runs 1 to 18	____
Door Interlock	____
Power Fail	____
Master Emergency Stop	____
Auxillary Emergency Stop	____
Submodes 01 to 09	____
Telescopic Head	____
T.U. Neck Movement	____
Software Version	____
Hand Crank Operation	____
Printer Operation	____
Primary/Secondary Timers	____
Torque Check	____

Legend

"✓" indicates good/completed
"R" indicates replaced item
"NR" indicates needs replacing
"NA" indicates not available

Remarks: _____

Office Use Only:

Service Managers Review: _____ Date: _____

PMI Interval: 6 Month 12 Month Next PMI Due _____

Parts Required: Yes No Order No. _____ Date _____

insure that radiation levels from the nearest accessible surface of the main safe are not in excess of 1 milliroentgen per hour. These values are also spot checked by the physicist at the time. (Physicist, Nucletron)

b. Radiation Safety Survey of Adjacent Areas:

All occupied areas adjacent to the treatment room are surveyed with the source in the irradiation position to establish that radiation levels in unrestricted areas do not exceed limits specified in 10 CFR 20.1201. For our purposes all areas are considered unrestricted. (Physicist)

Please refer to the room diagram presented in the original submission for details relative to location of items mentioned below.

c. Door Interlock Switch: Provision has been made in the door jamb for a plunger type door switch which is electrically interlocked to the HDR and prevents operation when the door is open. When the HDR source is in the irradiation position, opening the door activates the door interlock and the source is returned to the storage safe immediately. The HDR unit cannot be reactivated until the "emergency stop" circuitry is manually rearmed with a keyswitch.

This circuitry is tested by; (1) verifying that the source cannot be placed in the irradiation position with the door open; (2) verifying that if the source is in the irradiation position the source is immediately returned to the storage safe upon opening the door; and (3) verifying that normal operation of the unit cannot be resumed until the interlock circuit is rearmed manually with the keyswitch. (Physicist, Nucletron)

d. Interlock to Prevent Simultaneous Operation of HDR and Linear Accelerator:

An interlock to prevent simultaneous operation of the two units is connected to the respective door interlock switches. Unit selection is performed by a mutually exclusive two way key switch. When the key switch is in the HDR position, the accelerator circuitry senses a "door open" condition and its operation is inhibited. Similarly, when the key switch is in the the accelerator position, the HDR senses a "door open" condition and its operation is inhibited.

Proper operation of this circuitry is verified by changing switch positions when the door is closed and noting which unit is operational. (Physicist, Nucletron)

e. Emergency Stops:

These plunger type switches are located on the HDR, in the treatment room, in the control area, and on the control console. They are wired in series so that depressing any switch will activate the emergency off protocol which causes the source to retract immedately into the storage safe. The

emergency off system is manually reactivated by manually resetting the plunger switch and manually rearming the circuitry by means of a keyswitch.

Testing of this circuitry will be performed initially by Nucletron using a dummy source and confirming proper operation of each emergency off switch and source retraction. Validation by the physicist consists of depressing each switch in the treatment room and confirming that the unit cannot be operated until the circuitry is rearmed. Operation of the switches outside the room consists of depressing the switch and confirming that the source is retracted and that the unit cannot be reactivated until it is reset. (Physicist, Nucletron)

f. Power fail circuitry: If the mains power fails during source operation, the unit switches to battery operation and the source is immediately retracted. A switch which interrupts mains power is located in the control area for testing this circuitry. The unit is manually reset at the control console when power is restored.

Testing of this circuitry is performed by activating the power interrupt switch with the source in the irradiation position and observing source retraction and restoration of normal device operation. (Physicist, Nucletron)

g. Radiation On Indicators. Two radiation on indicators are wired into the HDR. These are the Source travel indicator on the control console and a warning light above the door which is activated when the source is extended. A Primalert monitor located inside the room with a slave unit located outside at the entry door serves as an independent monitor.

These units are tested by operating the unit and observing proper operation. The Primalert is also tested in a "power fail mode" by unplugging the unit and observing backup battery operation. The HDR source is used as a check source. (Physicist, Nucletron)

h. Audio-Visual Communication With the Patient: The room is equiped with two TV monitors, one a pan and zoom and the other a wide angle fixed monitor from which the patient can be observed. Both units are equiped with audio intercoms which allow two-way communication with the patient.

Testing of these units is performed by observing proper operation. (Physicist)

i. Warning Signs and Other Controls: The HDR is posted with a radioactive materials warning sign. The entry to the room is posted with a radiation area warning sign. Emergency procedures are also posted at the room entry. Operating manuals are located at the control console.

Physics Checks Prior to Patient Treatment

In addition to the checks discussed above, the following tests are performed by the physicist as part of the routine calibration of the HDR unit after the installation of a new source and prior to the first treatment.

a. Initial source calibrations and computer data entry and validation:

It is our preference to perform this initial calibration with Nucletron personnel present if possible to provide redundancy. The source is calibrated using a dedicated well ionization chamber (Standard Imaging and electrometer as described in our initial application. A number of source positions with the source in place for 20 seconds at each position are used and the maximum ionization value ("sweet spot") is used to determine the source activity in Curies. The source activity is then determined by decaying the manufacturer's value to the current date. Generally we have had agreement to within one to two percent of the manufacturer's value for all source calibrations to date. In the event that the values differ by more than +/- 5 percent, a secondary dosimetry system and/or independent measurements by another qualified physicist will be used to resolve this difference.

During this calibration procedure other safety features such as the Primalert Monitor and Beam On indicators and proper operation of the console are observed. (Physicist)

b. Timer checks:

b.1 Travel time error: The Nucletron protocol is used. The microselectron-HDR uses two indipendent timers to monitor source travel. The first timer starts the moment the radioactive source leaves the shielded enclosure to traverse to the first treatment position. The second timer is initiated upon arrival at the first of the sequential treatment positions. After the treatment is comleted for a particular dwell position or channel, the second timer stops when the source starts its travel period. The initial timer stops when the source is in the shielded safe. Printouts quantitate the time that the source was out of the safe and the treatment time. Subtracting one from the other leaves you the travel time noted by the system. There is a nominal value for this, and it is slightly dependent upon the mechanics of eadh system. During Quality Assurance testing prior to initiating treatment this travel time can be quantitated and used as a reference. If travel time noted during a treatment exceeds by more than 10% the nominal travel time, Nucletron should be called.

b.2 Timer accuracy:

The Nucletron Protocol for timer accuracy is used:

1. Program a treatment time of 300 seconds in a single dwell position.

2. Upon initiating a start command from the console, visually monitor the source travel, (i.e. flashing yellow light on the console) until the light glows solid indicating the source is in a treatment position. At that instant, start a stopwatch running. At the end of the programmed treatment time, the yellow light will begin flashing indicating movement of the source back into the shielded safe. At the instant the light starts to flash, stop the stopwatch. Once the source returns to the safe, verify on the computer printout that the source treatment time is within 10% of the treatment time measured with the stopwatch.

Using the time of 300 seconds minimizes any time delays in starting and stoping the stopwatch.

b.3 Timer linearity:

The source guide tube is taped to the side of a 0.6 cc ionization chamber with a Cobalt 60 buildup cap. The integrated ionization current is monitored for different treatment times ranging from 1 second to approximately 60 seconds. The integrated current is plotted as a function of time and the linearity is confirmed.

c. Source positioning:

The maximum length of travel of the source is observed using the Nucletron Source travel ruler. The actual source positions are observed by autoradiography. Standard radio-opaque markers are inserted into an endobronchial catheter which is taped to a redi-pack film. A radiograph is made of this assembly. The catheter is then attached to the HDR and a series of source positions are programed and treated. The resulting radiograph shows the fiducial markers and the corresponding irradiated positions which enable source positioning accuracy to be determined to within $\pm$ 1 mm.

d. Source homogeniety:

The autoradiographic technique above allows visual verification of source homogeniety.

Item 3. **Maintenance of Records**:

Records of the qualtiy contron checks described in Item 2 will be maintained for future inspection by NRC.

Item 4. **Individuals Involved in Device Relocation:**

All device relocations will be performed by service representatives of the device manufacturer, Nucletron Engineering BV.

Item 5. **Calculated Dose Rates in the Surrounding Areas of Vault:**

This item was originally page 8 of 8 of the original ammendment application and was apparently overlooked by me. The original calculation sheet is attached.

E.1 HDR Shielding Calculations: The following calculations were performed to document the anticipated dose rates from the HDR unit. Since the dose rates will be low, the source locations for the calculation were taken to be directly adjacent to the concrete walls. In the case of the maze, the source was assumed to be at the end of the maze, 19 feet from the room entry door.

Estimated exposure rates for a 12 Curie Ir-192 source

Location	Distance feet	Unshielded Dose Rate	Shielding Thickness	Trans. factor	Dose Rate mR/hr	Dose Rate** mr/yr
A. Control Console	3.5'	4.9 R/hr	3.5' concrete	5.5×10^{-8}	2.7×10^{-4}	0.003 mR/yr
B. Entry * Door	19.0'	0.167 R/hr	1" Pb + 0.5" Fe	0.027	4.5	54.0* mR/yr
C. Roof	10.0'	0.605 R/hr	2-4' concrete	8.0×10^{-8}	0.074	0.89 mR/yr
D. Simulator Room	2.5'	9.690 R/hr	2.5' concrete	1.0×10^{-5}	0.075	0.90 mR/yr
E. Simulator Room	13.0'	0.359 R/hr	6.5' concrete +steel	5.0×10^{-14}	----	-----

* Undetached source cannot be located in this position. This is to demonstrate that multiple scattered radiation levels down maze will be negligible.
** Assume annual workload to be approximately 12 hours

Exposure rate constant for Ir-192: 4.69 R cm^2 $mCi^{-1}hr^{-1}$
Tenth value layer for concrete : 14.9 cm
Tenth value layer for steel : 4.3 cm
Tenth value layer for lead : 2.0 cm

These calculations represent a worst case scenereo for an unshielded source. Typically the source will be exposed in the area shown in figure 2 behind the maze wall, so the entry door and simulator room will be exposed only to scattered radiation.

Our present workload is 2-3 cases per month, so the monthly workload will be less that 1 hr. We do not forsee a signifigant increase in this workload in the forseeable future. Our typical treatment regime requires that we deliver a dose of between 300-500 rads at a distance of 1 cm from the source. For the annual estimate, we assume the workload to be approximately 12 hours which would also include physics testing and calibration.

After the unit is relocated and the new source installed, the environs will be surveyed in accordance with the committments made in our original license application.

MAR 17 1997

William Nalesnick, Ph.D.
Radiation Safety Officer
Lester E. Cox Medical Center
1423 N. Jefferson
Springfield, MO 65802

Dear Dr. Nalesnick:

This refers to your License Number 24-01143-06 authorizing a Nucletron Corporation High Dose Rate MicroSelectron afterloading brachytherapy device for interstitial and intracavitary treatment of cancer. The remote afterloader device is approved for use at your facility. Your letters dated February 17, 1997, requested authorization to relocate your HDR facility at Cox South Campus. We can not, at this time, authorize this relocation because we need additional information.

During a recent review of our policy and procedures on licensing relocation applications of remote afterloader brachytherapy devices, we identified that relocating remote afterloading devices to a new location requires the remote afterloading device to be "reinstalled". In addition, our review identified the need to have, as part of your radiation safety program, specific quality control procedures to ensure that the device is functioning properly after relocation. We are requesting that licensees, who relocate their devices, perform a safety analysis to determine if the devices are being relocated safely. Therefore, it will be necessary for you to revise your procedures and provide, for our review, your safety analysis for the relocation of your device. The safety analysis should include, as a minimum:

1. A description of the procedures for transporting the device, e.g., personnel involved, device lock-out (radioactive source in safe shielded position), route of transport (i.e., elevators), etc.

2. A description of the procedures for performing quality control checks (i.e. source exposure mechanisms, external radiation levels [source shield], interlock systems, etc.) on the device to ensure that, prior to treatment, all safety features are operating properly. Please specify whether these quality control checks will be performed by your radiation safety staff or the manufacturer.

3. A commitment that records of the quality control checks described above will be maintained.

4. A commitment that all device relocations will be performed by service representatives of the device manufacturer, Nucletron Engineering BV or that personnel performing the device relocation will receive specific training by the device manufacturer.

5. A revision to your analysis of dose rates associated with relocation of the HDR to linear accelerator room 137. Your original analysis on pages 6 and 7 of your February 17, 1997 letter states values measured or calculated for dose rates due to the linear accelerator in that room but not the calculated dose rates for the HDR. Your conclusion that the room shielding will provide adequate protection from an HDR unit because of less radiation output at a lower energy than the linear accelerator is not necessarily well supported. Please calculate the dose rates due to the HDR's Ir-192 source and the associated yearly doses to the unrestricted areas adjacent to the restricted area in room 137.

Upon receipt of this information we will perform an evaluation of your safety analysis, to determine the adequacy of the procedures for the relocation of the remote afterloader device. Please reply in duplicate, within 20 days, as additional information to Control No. 302338.

If you have any questions or require clarification on any of the information stated above, you may contact Charles Gill at (630) 829-9814.

Sincerely,

Original Signed By
Charles F. Gill
Nuclear Materials Safety Branch

License No. 24-01143-06
Docket No. 030-09784

DOCUMENT NAME: M:\03009784.DF7

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

February 20, 1997

William J. Nalesnik, Ph.D.
Radiation Safety Officer
Lester E. Cox Medical Center
1423 N. Jefferson
Springfield, MO 65802

SUBJECT: ACKNOWLEDGEMENT OF CORRESPONDENCE
(Letter Dated 02/17/97)

Dear Licensee:

In response to your request, we have completed the initial processing, which is an administrative review of your application for a(n):

___ New License _X_ Amendment ___ Renewal
___ Termination ___ Auth User (Amendment not required)
___ Other_____

No administrative deficiencies were identified during this initial review. However, it should be noted that a technical review may identify omissions in the submitted information.

It appears that your request is routine (see 1-3 below, as applicable).

1. New and amendment actions are normally processed within 90 days, unless we find major deficiencies, or policy issues requiring central program office assistance.

2. Renewal actions are normally processed within 180 days, however, under timely filing (before expiration), you may continue to operate under your existing license.

3. Termination actions are normally processed within 90 days, unless confirmatory surveys following decontamination/decommissioning activities are involved.

A copy of your correspondence has been forwarded to our Licensing Fee and Debt Collection Branch (301/415-6097) for approval of the fee category and amount, if required.

If you have a compelling safety or business-related reason for requesting expedited review, please contact the Materials Licensing Branch at (630) 829-9887. We will try to complete your request as soon as practicable. Any correspondence about this request should reference the control number.

Nuclear Materials Support Branch

Mail Control No. 302338
License No. 24-01143-06