



DEPARTMENT OF THE AIR FORCE

DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535

24 February 1981

REPLY TO
ATTN OF: SG

SUBJECT: Renewal of NRC License 04-07840-02

TO: NRC
Washington D.C. 20555

1. Request that the teletherapy license (04-07840-02) be renewed. The following information is submitted in accordance with your instructions for renewal of teletherapy licenses.

- a. Department of the Air Force
David Grant USAF Medical Center
Travis AFB CA 94535
- b. NRC License No. 04-07840-02
- c. Colonel Stanley E. O'Dell, USAF, MC
Emmanuel Samouhos, M.D.
- d. AECL Model C-146, C-151 or Neutron Products NPI-20-8000W in an AECL Theratron 80. These will be 8000 Rhm sources.
- e. Change limits to 17,500 curies to allow for additional curies needed in Tungsten coated Neutron Products source.
- f. The Theratron 80 is a rotational cobalt unit with a beam stopper in place for rotational treatments. To treat whole body treatments or large radiation fields, beam interlocks have been set so that the primary radiation beam is restricted to the walls and floor as shown in Atch 1. In all cases, the primary beam is restricted to unoccupied areas of concrete and dirt.
- g. The patient viewing system consists of two separate TV systems consisting of a TV camera and monitor. On the occasion when one of the systems is inoperable, loaner TV cameras and monitors are available from the medical equipment repair section of the hospital. This has provided a continuous TV viewing system from the first day of operation. There is a backup viewing system consisting of a lead glass window and mirror available if necessary.
- h. The personnel monitoring devices are provided by the USAF Radiological Health Laboratory at Brooks AFB, Texas. They consist of a body film badge changed monthly.
- i. The following are the monitoring and survey instruments available:
 - (1) GM Survey Meter, AN/PDR 27-C
 - (2) Ionization Meter, Victoreen Model 666
 - (3) Victoreen Model 570 Condensor R-Meter, Model 621 (100R) and Model 553 (25R) cobalt energy ionization chambers
 - (4) Energy compensated GM room monitor with visible alarm and battery pack (Victoreen Primalert 35)

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NMS LIC30
04-07840-02 PDR

Global in Mission -- Professional in Action

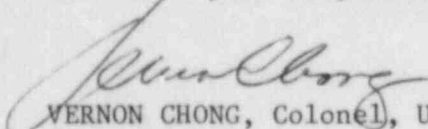
Instruments (1), (2) and (4) are calibrated every six months and instrument (3) is calibrated in accordance with 10 CFR 35.23.

j. Instruments (1), (2) and (4) listed in Paragraph i are calibrated by McClellan AFB calibration facility. The procedures for this calibration were forwarded to NRC on 17 December 1979 as part of the renewal of NRC License 04-07840-01. The Victoreen R-meter and chamber are calibrated by an approved regional physics laboratory in conformance with 10 CFR 35.23. The system was calibrated on 17 February 1981.

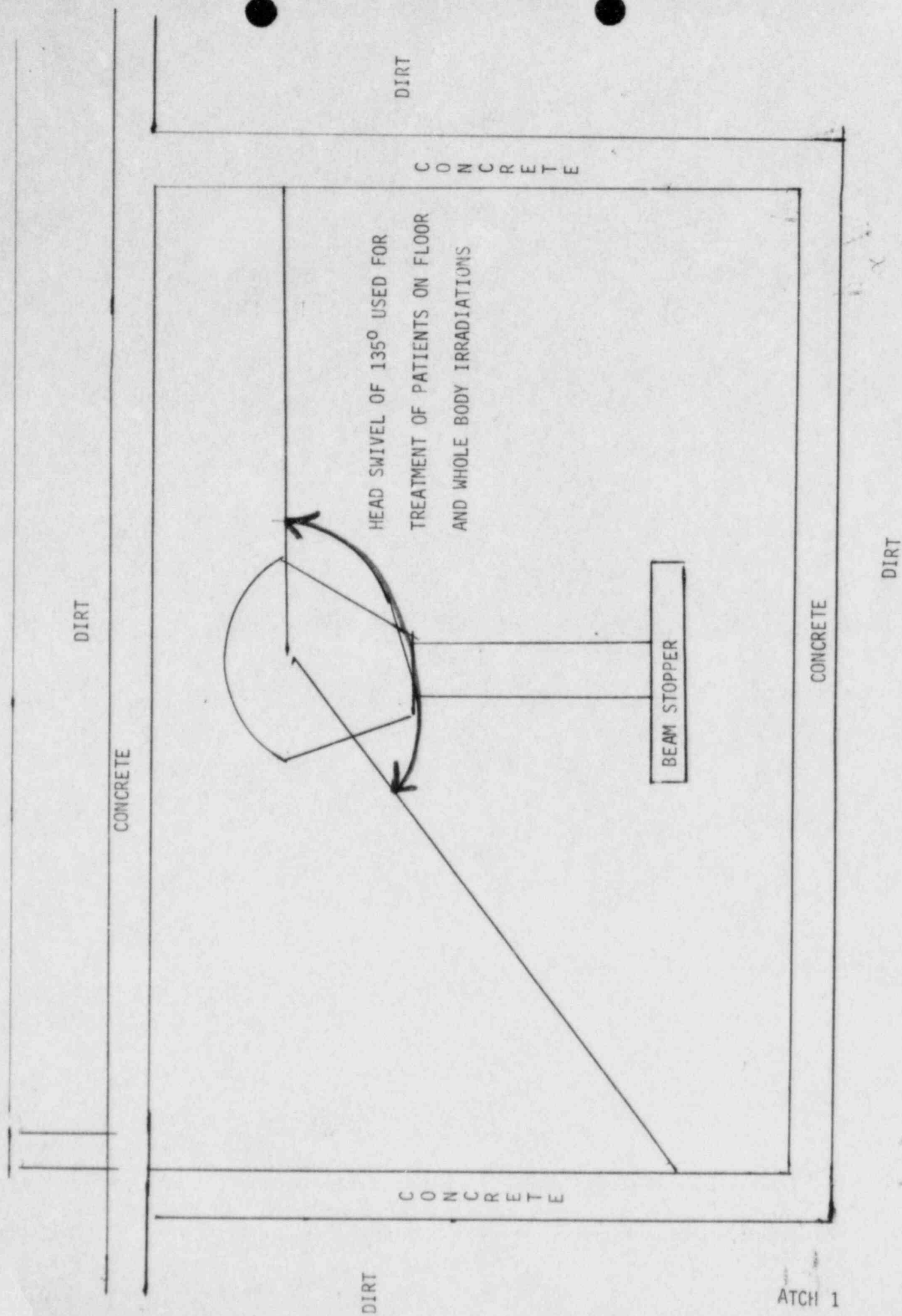
k. The semi-annual leak test is performed by the Environmental Health personnel of the Health Center using procedures listed in Atch 2. The leak tests are analyzed by the USAF Radiological Laboratory located at Brooks AFB, Texas.

l. The emergency procedures are listed in Atch 3.

m. A radiation protection survey was performed and forwarded in June, 1976. A new survey will be performed in June, 1981, when the present source is replaced and the 5-year inspection and maintenance is performed.


VERNON CHONG, Colonel, USAF, MC
Commander

3 Atch
1. Beam Interlock Positions
2. Leak Test Procedures
3. Emergency Procedures



LEAK TEST PROCEDURES

Leak tests will be performed semiannually by Environmental Health Personnel on accessible surfaces of the Cobalt 60 source. The following procedures will be used:

1. Reference Radiation Survey Folder for sealed sources and number sequence to be used.
2. Tech performing swipes will wear long gloves and use forceps, tongs, and/or tweezers when performing swipes on sealed sources.
3. Place a small "x" in pencil only on the outer edge of the swipe on the side which is to touch the radioactive source or area of contamination.
4. As each swipe is done, place it in the envelope (AF Form 495) unfolded and dry.
5. One swipe per envelope.
6. Leave the envelopes unsealed.
7. Complete the information on each envelope (AF Form 495) per instruction letter contained in the Radiation Survey Folder.
8. Place all swipes and envelopes (AF Form 495) in large envelope and address to:
USAF OEHL (RZA)
Brooks AFB TX 78235
9. Log in Radiation Survey Folder the date swipes were mailed.
10. Results will be furnished in 3-6 weeks by OEHL on computer listing.
11. Listing will be reviewed by Radiation Safety Officer (RSO) then filed in the Radiation Survey Folder.

atch 2

EMERGENCY PROCEDURES

IF THE DRAWER FAILS TO CLOSE, PROCEED AS FOLLOWS:

If signals indicate that the beam control has failed to terminate the radiation of the preset time, the following steps are to be carried out in a calm, unhurried manner.

1. Open door to treatment room.

2. (a) If patient is ambulatory, direct him/her to get off the table and leave the room.

(b) If patient is not ambulatory, enter room, avoiding exposure to primary beam as much as possible, close collimators as small as possible, and try to close emergency beam control*; if not immediately successful, transfer patient to stretcher and remove him from the room.

(c) The drawer return emergency T-Bar, which is supplied with the unit and located at the control station, should be placed over the beam condition indicating rod. Forward pressure on the source drawer with the T-Bar will push the drawer backwards and into the safe position.

*Note: The amber-colored portion of the emergency T-Bar must be entirely inside the front head cover before the source is in the fully safe position. This will reduce external radiation fields to the normal levels and allow repairs to be made to the drawer. The front portion of the T-Bar is painted red and the source can be considered safe if no red marking appears outside the cover.

3. Close and lock door.

4. Turn off main switch at control panel.

5. Notify x-ray company and radiation protection officer.

X-Ray Company
AECL
(714) 989-3900

Radiation Protection Officer
Dr. Bernard S. Tatera
Duty Phone - Dial 3 on comm line
Home Phone - 446-3358

07276

Atch 3

INFORMATION REQUIRED FOR RENEWAL
OF TELETHERAPY LICENSES

Your application for renewal of your teletherapy license may be made without the use of an NRC form. The application must be signed by the applicant or, if the applicant is an institution, by an individual authorized to sign on behalf of the institution (e.g., hospital administrator). In your renewal request, you should provide the following information:

1. Name and address of licensee.
2. License number to be renewed.
3. Names of individual users. If new users are to be added, see number 15.
4. The manufacturer's name and model number of the teletherapy unit and source, if different from that listed in Items 7 and 9 of your license.
5. The possession limit of the source to be used, if different from that listed in Item 8 of your license.
6. The mechanical and/or electrical beam stops that are operational and restrict beam orientation. Specify each direction in which the teletherapy head can be moved and the maximum angle (from vertical) of the beam orientation in each direction. (See Section III.8.3 of the guide.)
7. Describe your continuous patient viewing system. (See Section III.C.2 of the guide.)
8. With regard to personnel monitoring devices, please specify:
 - a. Name of the supplier.
 - b. Type of devices used (e.g., film badges, TLD; body, wrist, ring).
 - c. Frequency of changing monitoring devices.
 - d. For pocket dosimeters, the useful range, frequency of reading and procedures for calibration and maintenance. (See Section III.D.1 of the guide.)

9. With regard to radiation survey and monitoring instruments available in your facility, specify:

- a. Manufacturer's name and model number of each instrument.
- b. The frequency of calibration of each instrument. (See Section III.D.2 of the guide.)

10. If you propose to calibrate your own radiation survey and monitoring instruments, you should submit a detailed description of your planned calibration procedures. The description of calibration procedures should include, as a minimum:

- a. The manufacturer's name and model number of the source(s) to be used.
- b. The nuclide and quantity of radioactive material contained in the source.
- c. The accuracy of the source(s). Traceability of the source to a primary standard should be provided.
- d. The step-by-step procedures, including associated radiation safety procedures. These procedures should include a two point calibration of each instrument with the points separated by at least 50% of the scale.
- e. the name(s) and pertinent experience of person(s) who will perform the calibrations.

The enclosed survey meter procedures may be useful to you.

11. If you intend to contract out the calibration of your radiation survey and monitoring instruments, you should specify the name, address, and the license number of the firm. You should contact the firm that will provide the calibration to determine if information concerning calibration procedures has been filed with the Commission. If this information has not been filed, you should obtain information concerning calibration procedures and submit it to this office.

12. With regard to the required semi-annual leak testing of your teletherapy source, please:

- a. Specify the name and address of the organization that will perform the test.
- b. Describe the manner in which leak test samples are taken.
- c. Specify the manufacturer's name and model number of instrumentation to be used in the analysis.

(See Section III.D.4 of the enclosed guide.)

13. Submit an up-to-date copy of emergency procedures to be followed in the event that the operator is unable to turn off the teletherapy unit at the console. (Section III.D.5 of the guide gives a suggested procedure.) Your procedure should contain the names and telephone numbers of specific individuals to be notified in case of emergency (e.g., responsible physician, radiation protection officer).

14. Conditions 18 and 19 of your license require that a radiation survey be performed and the results reported to the U.S. Nuclear Regulatory Commission:

- a. Each time your teletherapy source is replaced.
- b. Whenever you make any changes in the shielding, location or use of your teletherapy installation that could affect radiation levels in surrounding areas.

You should check your records and be sure that survey reports were submitted in accordance with Conditions 18 and 19 of your license. If you need to submit a survey report, please be sure that it is prepared in accordance with Appendix A of the enclosed guide.

15. In order to add another physician as an authorized user, please submit:

- a. The number of the AEC/NRC or Agreement State teletherapy license on which the physician was listed as an authorized user, OR

- b. A statement indicating that the physician is certified by the American Board of Radiology in Radiology or Therapeutic Radiology and the year of certification, OR
- c. Evidence of the physician's training and experience. This should include the information requested in Item Nos. 8 and 9 of Form AEC-313, and completed, signed preceptor statements (page 3 of Form AEC-313(A)) with additional statements from each physician under whom he received training and experience in the use of teletherapy units. These latter statements should describe the scope and the extent of his training and experience and an appraisal of his competency to independently use a teletherapy unit. (See Section III.A. of the enclosed guide.) This information will be reviewed with the assistance of the Commission's Advisory Committee on Medical Uses of Isotopes.



DEPARTMENT OF THE AIR FORCE

DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535

23 June 1981

REPLY TO
ATTN OF SG

SUBJECT: Renewal of NRC License 04-07840-02 (Control No. 07276)

TO: USAF Radioisotope Committee
AFMSC/SGPZ
Brooks AFB TX 78235

1. The following additional information is submitted for the renewal of the radiotherapy license:

a. The mailing address is:

Radiotherapy Service (SGHRT)
David Grant USAF Medical Center
Travis AFB CA 94535

b. The physical location of the radiotherapy treatment unit is Room B0115, located in the B wing annex on the basement floor of Building 381.

c. We want to delete Dr. Robert Allman but do want to add a new radiotherapist who has been added to our staff. The name of the new radiotherapist is Dr. Richard Niemtzow, a medical doctor, who has completed his radiotherapy residency and is board eligible. His experience sheets are attached (Atch 1).

d. We wish to delete the GE Teletherapy Source since they no longer sell this source.

e. The total activity requested is to provide enough authorization for the neutron products source if such source is purchased.

f. The emergency procedures have been modified to include the name of our chief technologist as an additional person to contact in case of emergency.

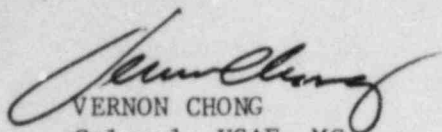
g. New teletherapy employees will be trained in the emergency procedures.

h. "Dry runs" of the emergency procedures will be conducted once each six months and report given to the DGMC radioisotope committee.

i. The ALARA program was approved by the Radioisotope Committee on 20 Feb 81 and signed by the medical center commander (Atch 2).

j. Attached is a copy of the 1976 survey report (Atch 3).

2. Please forward this information to NRC to complete our renewal application.

A handwritten signature in cursive script, appearing to read "Vernon Chong", is written over the printed name.

VERNON CHONG
Colonel, USAF, MC
Commander

PRECEPTOR STATEMENT

Supplement B must be completed by the applicant physician's preceptor. If more than one preceptor is necessary to document experience, obtain a separate statement from each.

1. APPLICANT PHYSICIAN'S NAME AND ADDRESS

FULL NAME

RICHARD C. NIEMTZOW

STREET ADDRESS

DAVID GRANT MEDICAL CENTER

TRAVIS AFB, CA 94535

CITY

STATE

ZIP CODE

KEY TO COLUMN C

PERSONAL PARTICIPATION SHOULD CONSIST OF:

- 1-Supervised examination of patients to determine the suitability for radioisotope diagnosis and/or treatment and recommendation for prescribed dosage.
- 2-Calibration in dose calibration and actual administration of dose to the patient including calculation of the radiation dose, related measurements and plotting of data.
- 3-Adequate period of training to enable physician to manage radioactive patients and follow patients through diagnosis and/or course of treatment.

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheet but D)
I-131 OR I-125	DIAGNOSIS OF THYROID FUNCTION		
	DETERMINATION OF BLOOD AND BLOOD PLASMA VOLUME		
	LIVER FUNCTION STUDIES		
	FAT ABSORPTION STUDIES		
	KIDNEY FUNCTION STUDIES		
	IN VITRO STUDIES		
OTHER			
I-125	DETECTION OF THROMBOSIS		
I-131	THYROID IMAGING		
P-32	EYE TUMOR LOCALIZATION		
Sr-75	PANCREAS IMAGING		
Yb-169	CISTERNOGRAPHY		
Xe-133	BLOOD FLOW STUDIES AND PULMONARY FUNCTION STUDIES		
OTHER			
Tc-99m	BRAIN IMAGING		
	CARDIAC IMAGING		
	THYROID IMAGING		
	SALIVARY GLAND IMAGING		
	BLOOD POOL IMAGING		
	PLACENTA LOCALIZATION		
	LIVER AND SPLEEN IMAGING		
	LUNG IMAGING		
	BONE IMAGING		
OTHER			

ATCH 1

PRECEPTOR STATEMENT (Continued)

2. CLINICAL TRAINING AND EXPERIENCE OF ABOVE NAMED PHYSICIAN (Continued)

ISOTOPE A	CONDITIONS DIAGNOSED OR TREATED B	NUMBER OF CASES INVOLVING PERSONAL PARTICIPATION C	COMMENTS (Additional information or comments may be submitted in duplicate on separate sheets.) D
P-32 (Soluble)	TREATMENT OF POLYCYTHEMIA VERA LEUKEMIA AND BONE METASTASES		
P-32 (Colloidal)	INTRACAVITARY TREATMENT		
I-131	TREATMENT OF THYROID CARCINOMA		
	TREATMENT OF HYPERTHYROIDISM		
Au-198	INTRACAVITARY TREATMENT		
Co-60 or Cs-137	INTERSTITIAL TREATMENT		
	INTRACAVITARY TREATMENT	48	
I-125 or Ir-192	INTERSTITIAL TREATMENT		
Co-60 or Cs-137	TELETHERAPY TREATMENT	360	
Sr-90	TREATMENT OF EYE DISEASE	144	
	RADIOPHARMACEUTICAL PREPARATION		
Mo-99/ Tc-99m	GENERATOR		
Sn-113/ In-113m	GENERATOR		
Tc-99m	REAGENT KITS		
Other			

3. DATES AND TOTAL NUMBER OF HOURS RECEIVED IN CLINICAL RADIOISOTOPE TRAINING

4. THE TRAINING AND EXPERIENCE INDICATED ABOVE WAS OBTAINED UNDER THE SUPERVISION OF:

a. NAME OF SUPERVISOR
Marvin A. Stem and Edward J. Laferriere

b. NAME OF INSTITUTION
University of Texas Medical Branch at Galveston

c. MAILING ADDRESS
U.T.M.B. Medical Radiology Bldg. Quad 400

d. CITY
Galveston, Texas 77550

e. MATERIALS LICENSE NUMBER(S)

5. PRECEPTOR'S SIGNATURE

Edward J. Laferriere, MD

7. PRECEPTOR'S NAME (Please type or print)

Edward J. Laferriere

8. DATE

28 Feb 81

- c. Evidence of the physician's training and experience. This should include the information requested in Item Nos. 8 and 9 of Form AEC-313, and completed, signed preceptor statements (page 3 of Form AEC-313(A)) with additional statements from each physician under whom he received training and experience in the use of teletherapy units. These latter statements should describe the scope and the extent of his training and experience and an appraisal of his competency to independently use a teletherapy unit. (See Section III.A. of the enclosed guide.) This information will be reviewed with the assistance of the Commission's Advisory Committee on Medical Uses of Isotopes.

Dr. Wentz completed the full four-year program at the University of Texas Medical Branch on 1 Jan 1961. He was the chief-resident during his last year in the program. The scope of his training included instruction in the basics of radiation physics including primary interaction theory, basics of high-energy machines, radiation protection with applications and laboratory work where indicated, and with instruction in radiation therapy treatment planning and dosimetry. He also received instruction in radiobiology and of course clinical radiotherapy. The University is a very large one with referrals over a very wide area bringing to us a great diversity of patient material. He then formulated treatment plans in radiotherapy of all of the common malignancies as well as a large no. of more rare disorders and a large no. of advanced disease patients. This case was treated on one of the three different megavoltage beam machines (Clinac 4B with 10 MeV, Heraeus 750 (60Co) and a 22 MeV Betatron) - two of these machines had 5-beam capability. He also performed a significant no. of intracavitary ²²⁶Ra-applications, and intrastitial ¹⁹²Ir seed applications. He learned well all of the basics and the various (cases)

introduction of more complicated field planning (wide field moving-beam etc.)
(consider him to be fully competent to independently use any
of the high energy teletherapy units available as well as to use the
the standard techniques of radiotherapy (intracavitary and interstitial treatment
and ⁹⁰Ir eye treatments)

Edward J. McParsio MD

APPENDIX O

MODEL PROGRAM FOR MAINTAINING OCCUPATIONAL RADIATION EXPOSURES AT MEDICAL INSTITUTIONS ALARA DAVID GRANT USAF MEDICAL CENTER

(Licensee's Name)

20 February 1981

(Date)

I. Management Commitment

- a. We, the management of this (medical facility, hospital, etc.), are committed to the program described in this paper for keeping exposures (individual and collective) as low as is reasonably achievable (ALARA). In accord with this commitment, we hereby describe an administrative organization for radiation safety and will develop the necessary written policy, procedures, and instructions to foster the ALARA concept within our institution. The organization will include a Radiation Safety Committee (RSC)¹ and a Radiation Safety Officer (RSO).
- b. We will perform a formal annual review of the radiation safety program, including ALARA considerations. This shall include reviews of operating procedures and past exposure records, inspections, etc., and consultations with the radiation protection staff or outside consultants.
- c. Modification to operating and maintenance procedures and to equipment and facilities will be made where they will reduce exposures unless the cost, in our judgment, is considered to be unjustified. We will be able to demonstrate, if necessary, that improvements have been sought, that modifications have been considered, and that they have been implemented where reasonable. Where modifications have been recommended but not implemented, we will be prepared to describe the reasons for not implementing them.
- d. In addition to maintaining doses to individuals as far below the limits as is reasonably achievable, the sum of the doses received by all exposed individuals will also be maintained at the lowest practicable level. It would not be desirable, for example, to hold the highest doses to individuals to some fraction of the applicable limit if this involved exposing additional people and significantly increasing the sum of radiation doses received by all involved individuals.

¹Private practice physician licenses do not include an RSC.

* Radiation Safety Committee (RSC)²

a. Review of Proposed Users and Uses

- (1) The RSC will thoroughly review the qualifications of each applicant with respect to the types and quantities of materials and uses for which he has applied to ensure that the applicant will be able to take appropriate measures to maintain exposure ALARA.
- (2) When considering a new use of byproduct material, the RSC will review the efforts of the applicant to maintain exposure ALARA. The user should have systematized procedures to ensure ALARA and shall have incorporated the use of special equipment such as syringe shields, rubber gloves, etc., in his proposed use.
- (3) The RSC will ensure that the user justifies his procedures and that dose will be ALARA (individual and collective).

b. Delegation of Authority

(The judicious delegation of RSC authority is essential to the enforcement of an ALARA program.)

- (1) The RSC will delegate authority to the RSO for enforcement of the ALARA concept.
- (2) The RSC will support the RSO in those instances where it is necessary for the RSO to assert his/her authority. Where the RSO has been overruled, the Committee will record the basis for its action in the minutes of the Committee's quarterly meeting.

²The RSO on private practice physician licenses will assume the responsibilities of the RSC under Section 2.

Review of ALARA Program

- (1) The RSC will encourage all users to review current procedures and develop new procedures as appropriate to implement the ALARA concept.
- (2) The RSC will perform a quarterly review of occupational radiation exposure with particular attention to instances where Investigational Levels in Table O-1 below are exceeded. The principal purpose of this review is to assess trends in occupational exposure as an index of the ALARA program quality and to decide if action is warranted when Investigational Levels are exceeded (see Section 6).³
- (3) The RSC will evaluate our institution's overall efforts for maintaining exposures ALARA on an annual basis. This review will include the efforts of the RSO, authorized users, and workers as well as those of management.

3. Radiation Safety Officer (RSO)

a. Annual and Quarterly Review

- (1) Annual review of the radiation safety program. The RSO will perform an annual review of the radiation safety program for adherence to ALARA concepts. Reviews of specific procedures may be conducted on a more frequent basis.
- (2) Quarterly review of occupational exposures. The RSO will review at least quarterly the external radiation exposures of authorized users and workers to determine that their exposures are ALARA in accordance with the provisions of Section 6 of this program.
- (3) Quarterly review of records of radiation level surveys. The RSO will review radiation levels in unrestricted and restricted areas to determine that they were at ALARA levels during the previous quarter.

b. Education Responsibilities for ALARA Program

- (1) The RSO will schedule briefings and educational sessions to inform workers of ALARA program efforts.

- (2) The RSO will ensure that authorized users, workers, and ancillary personnel who may be exposed to radiation will be instructed in the ALARA philosophy and informed that management, the RSC, and the RSO are committed to implementing the ALARA concept.

c. Cooperative Efforts for Development of ALARA Procedures

Radiation workers will be given opportunities to participate in formulation of the procedures that they will be required to follow.

- (1) The RSO will be in close contact with all users and workers in order to develop ALARA procedures for working with radioactive materials.
- (2) The RSO will establish procedures for receiving and evaluating the suggestions of individual workers for improving health physics practices and will encourage the use of those procedures.

d. Reviewing Instances of Deviation from Good ALARA Practices

The RSO will investigate all known instances of deviation from good ALARA practices and, if possible, will determine the causes. When the cause is known, the RSO will require changes in the program to maintain exposures ALARA.

4. Authorized Users

a. New Procedures Involving Potential Radiation Exposures

- (1) The authorized user will consult with, and receive the approval of, the RSO and/or RSC during the planning stage before using radioactive materials for a new procedure.
- (2) The authorized user will evaluate all procedures before using radioactive materials to ensure that exposures will be kept ALARA. This may be enhanced through the application of trial runs.

b. Responsibility of Authorized User to Persons Under His/Her Supervision

- (1) The authorized user will explain the ALARA concept and his/her commitment to maintain exposures ALARA to all persons under his/her supervision.
- (2) The authorized user will ensure that persons under his/her supervision who are

³The NRC has emphasized that the Investigational Levels in this program are not new dose limits but, as noted in ICRP Report 26, "Recommendations of the International Commission on Radiological Protection," serve as check points above which the results are considered sufficiently important to justify further investigations.

subject to occupational radiation exposure are trained and educated in good health physics practices and in maintaining exposures ALARA.

5. Persons Who Receive Occupational Radiation Exposure

- a. The worker will be instructed in the ALARA concept and its relationship to working procedures and work conditions.
- b. The worker will know what recourses are available if he/she feels that ALARA is not being promoted on the job.

6. Establishment of Investigational Levels In Order to Monitor Individual Occupational External Radiation Exposures

This institution (or private practice) hereby establishes Investigational Levels for occupational external radiation exposure which, when exceeded, will initiate review or investigation by the RSC and/or the RSO. The Investigational Levels that we have adopted are listed in Table O-1 below. These levels apply to the exposure of individual workers.

Table O-1

*Investigational Levels
(mrems per calendar quarter)*

	Level I	Level II
1. Whole body; head and trunk; active blood-forming organs; lens of eyes; or gonads	125	375
2. Hands and forearms; feet and ankles	1875	5625
3. Skin of whole body*	750	225

*Not normally applicable to nuclear medicine operations except those using significant quantities of beta-emitting isotopes.

The Radiation Safety Officer will review and record on Form NRC-5, "Current Occupational External Radiation Exposures," or an equivalent form (e.g., dosimeter processor's report), results of personnel monitoring not less than once in any calendar quarter as required by § 20.401 of 10 CFR Part 20. The following actions will be taken at the Investigational Levels as stated in Table O-1:

- a. Quarterly exposure of individuals to less than Investigational Level I.

Except when deemed appropriate by the RSO, no further action will be taken in those cases where an individual's exposure is less than Table O-1 values for the Investigational Level I.

- b. Personnel exposures equal to or greater than Investigational Level I, but less than Investigational Level II.

The RSO will review the exposure of each individual whose quarterly exposures equal or exceed Investigational Level I and will report the results of the reviews at the first RSC meeting following the quarter when the exposure was recorded. If the exposure does not equal or exceed Investigational Level II, no action related specifically to the exposure is required unless deemed appropriate by the Committee. The Committee will, however, consider each such exposure in comparison with those of others performing similar tasks as an index of ALARA program quality and will record the review in the Committee minutes.

- c. Exposure equal to or greater than Investigational Level II.

The RSO will investigate in a timely manner the cause(s) of all personnel exposures equaling or exceeding Investigational Level II and, if warranted, will take action. A report of the investigation, actions taken, if any, and a copy of the individual's Form NRC-5 or its equivalent will be presented to the RSC at the first RSC meeting following completion of the investigation. The details of these reports will be recorded in the RSC minutes. Committee minutes will be sent to the management of this institution for review. The minutes, containing details of the investigation, will be made available to NRC inspectors for review at the time of the next inspection.

- d. Reestablishment of an individual occupational worker's Investigational Level II to a level above that listed in Table O-1.

In cases where a worker's or a group of workers' exposures need to exceed Investigational Level II, a new, higher Investigational Level II may be established on the basis that it is consistent with good ALARA practices for that individual or group. Justification for a new Investigational Level II will be documented.

The RSC will review the justification for, and will approve, all revisions of Investigational Level II. In such cases, when the exposure equals or exceeds

the newly established Investigational Level II,
those actions listed in paragraph 6.c above will
be followed.

Signature of Certifying Official⁴

I hereby certify that this institution (or private prac-
tice) has implemented the ALARA Program set forth
above.

Signature

Vernon Chong, Colonel, USAF, MC

Name (print or type)

Medical Center Commander

Title

Institution (or Private Practice) Name and Address

David Grant USAF Medical Center

Travis AFB, California 94535

⁴The person who is authorized to make commitments for the
administration of the institution (e.g., hospital administrator) or,
in the case of a private practice, the licensed physician.

DEPARTMENT OF THE AIR FORCE
DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535



REPLY TO

ATTN OF: SGHR

23 July 1976

SUBJECT: Radiation Protection Survey Cobalt Facility, Travis AFB, CA

TO: SG

1. The Radiation Protection Survey of the Cobalt Facility at Travis AFB was conducted during the period of 26 June to 28 June 1976.

a. A leak test was performed on the new source prior to shipment and after arrival and certificates were given stating that the source was leak free as determined by helium pressure test and by wipe tests.

b. The sourcehead leakage radiation was checked with source in the off position. The results of the test are attached. (Atch A)

c. The areas adjacent to the treatment room were surveyed with the beam in the on position and a phantom in the primary beam of radiation using a Victoreen Model 666 Ionization Meter. The results of the survey are attached. (Atch B) The measured radiation levels were such that radiation levels in restricted and unrestricted areas are within the accepted limits.

d. The radiation output of the source was measured using a Victoreen Model 570 Electrometer and a Model 621 Ionization Chamber. The output was 109R/min at a meter.

e. The interlocks and warning lights on the unit were checked and found to operate satisfactorily as follows:

(1) Door interlock turned system off and system had to be reset at the control panel.

(2) All emergency off switches were checked and found to satisfactorily turn off system and switch had to be reset before unit could be restarted from control panel.

(3) The interlock on the sourcehead swivel was set so that the source would come on only when the beam would strike the floor or the east wall. These areas have dirt fill on the other side of the wall and floor.

(4) The warning lights on the door, source arm, and console were found to operate satisfactorily and indicated when the source is on, off or in between positions.

(5) The timer was checked with a stop watch and found to be working satisfactorily.

2. Copies of the license, wipe tests and protection survey are on file in the Department for review by appropriate authorities.

Bernard S. Tatera

BERNARD S. TATERA, Major, USAF, BSC
Health Physicist

MEASUREMENTS IN mr/hr AT 1 METER FROM THE SOURCE

PATIENT:

Name David Grant USAF Medical Center
Location Travis AFB, California

UNIT:

Model Theratron 80
Serial Number 312

SOURCE:

Output 109 rads
Activity 6600 (26 June 1976) Curies
Serial Number NPI-20-6600W #T-191

TRANSMUTATION:

Manufacturer Victoreen
Model 666
Serial Number _____

MEASUREMENTS:

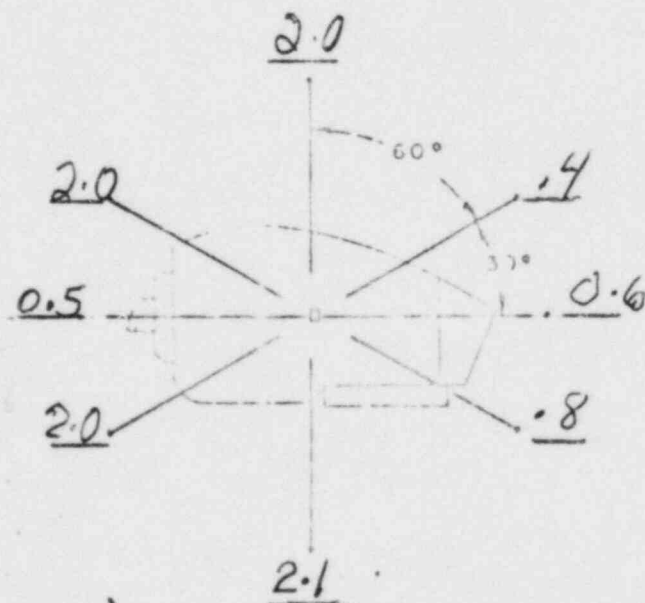
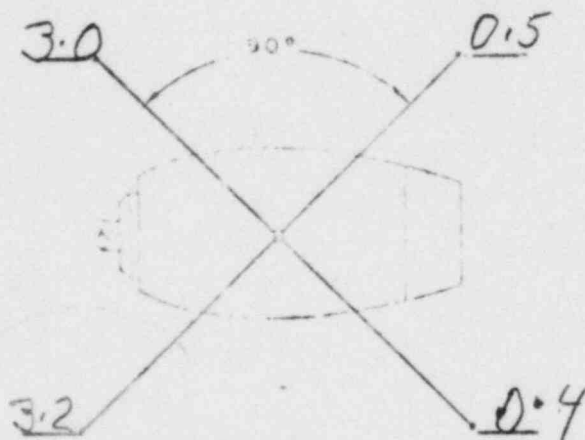
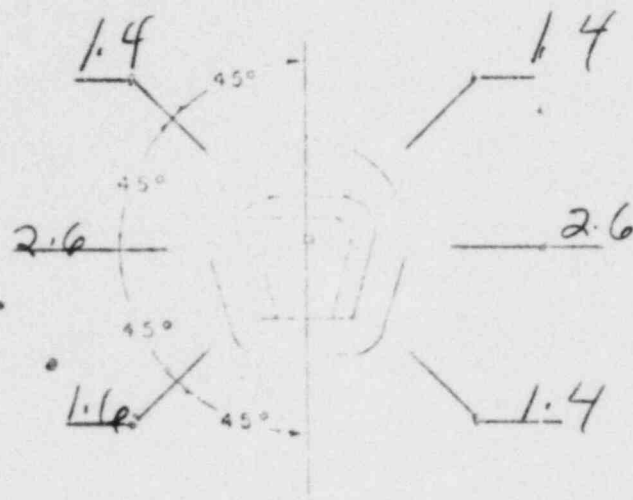
By Major Bernard S. Tatera, BSC
Date June 27, 1976

REMARKS:

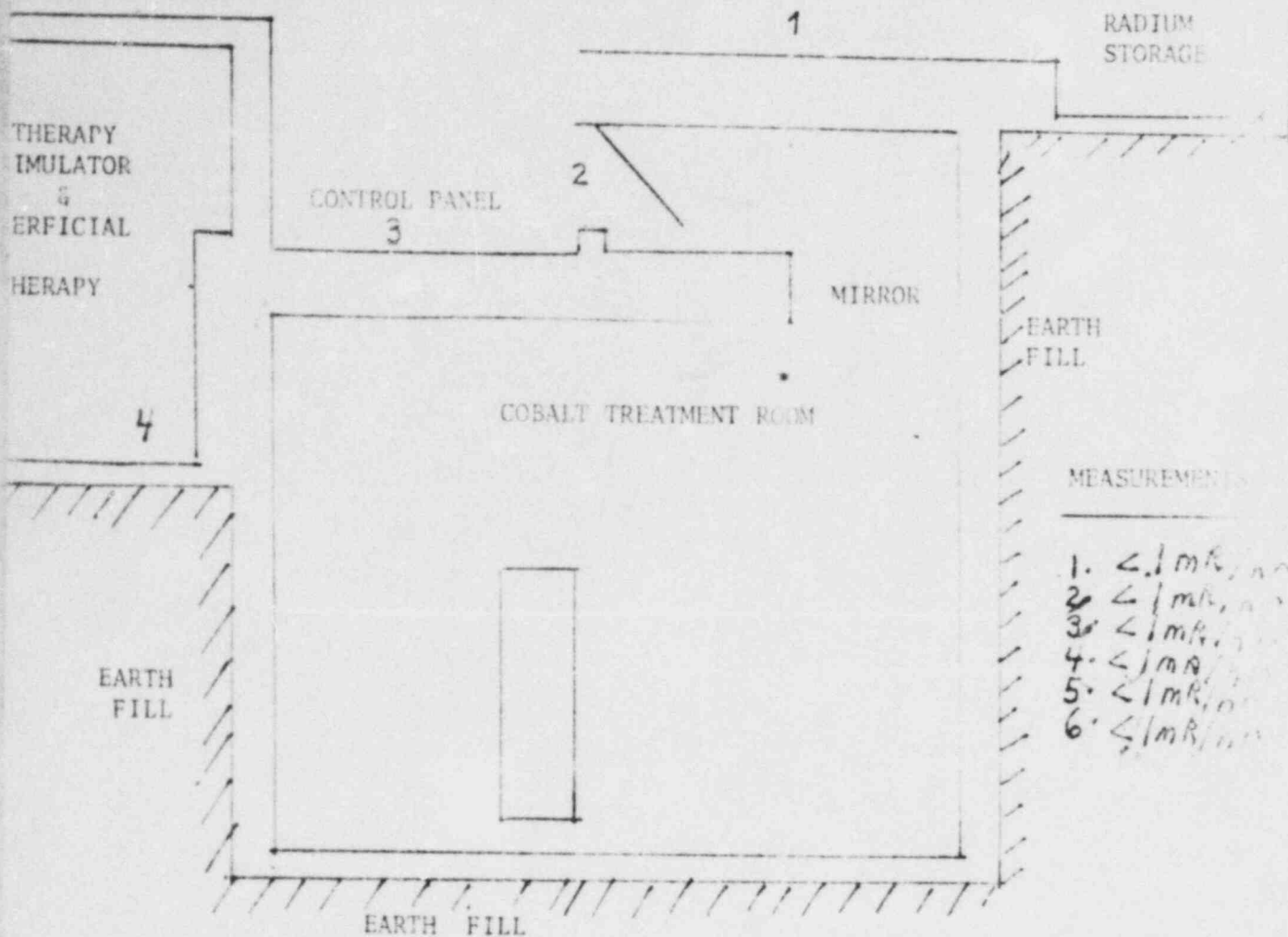
Average reading 1.6 mR/hr at a meter

Maximum Reading 3.2 Mr/hr at a meter

Bernard S. Tatera
BERNARD S. TATERA
Major USAF BSC
Health Physicist



CORRIDOR



MEASUREMENTS

1. $< 1 \text{ mR/hr}$
2. $< 1 \text{ mR/hr}$
3. $< 1 \text{ mR/hr}$
4. $< 1 \text{ mR/hr}$
5. $< 1 \text{ mR/hr}$
6. $< 1 \text{ mR/hr}$

