



Luther Hospital

310 Chestnut Street
Eau Claire, Wisconsin
54701

Phone (715) 839-3311

November 5, 1981

Mr. D. G. Wiedeman, Acting Chief
Materials Radiation Protection - Section I
United States Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

re: Licence No. 48-02122-04

Dear Mr. Wiedeman:

In answer to your letter dated October 15, 1981, the following corrective actions have been taken to correct non-compliance activities, which were found to exist during the September 1 inspection.

Violation #1 - "Area Monitor" Cobalt Room.

1. A permanent sign has been mounted on the door to the Cobalt room with the following information:

"In the event of malfunction or failure of 'Primalert 10,' personnel entering this room must determine the condition of the beam source with the survey meter, Nuclear Chicago Model 21586."
2. The 'Primalert 10' has been repaired and was re-installed on October 21, 1981 and is operating properly, as specified by the manufacturer and supplier.
3. A second area monitor, Nuclear Radiation Detector, Model RD-1, has been ordered from ADC Medical, Farmingdale, N.Y. for back-up.

Violation #2 -

Attached to this report are photocopies of Midwest Radiation Consultants, Inc. calibration for instrumentation. Also attached is the curriculum vitae of J. Thomas Payne, Ph. D., who is Luther Hospital's medical physicist.

These pages have been duly filed in the Radiology Administrator's office and in the Radiation Oncology office, as of November 2, 1981.



D. G. Wiedeman, Acting Chief
U.S. Nuclear Regulatory Commission
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November 5, 1981

I hereby affirm that the above actions have been taken and completed.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Joseph W. Gross", is written over the typed name.

Joseph W. Gross
President
Luther Hospital

amr

attachments/2

MIDWEST RADIATION CONSULTANTS, INC.

543 TOMLYN AVENUE, ST. PAUL, MN 55112

CALIBRATIONS • SURVEYS • PLANNING • NUCLEAR MEDICINE

10/27

Gerry

Enclosed please find the calibration certification for the dosimeter used to calibrate your cobalt unit.

The calibration is done in "air" using a chamber with a cobalt buildup cap. Measurements are made at different field sizes and SSD's. Conversion is made to rads using correction factors:
 $1/\text{Roentgen} = 0.957$, $A_{eq} = 0.985$ and
 $(SSD/SSD + 0.5)^2$.

Sincerely
J. Thomas Payne

J. THOMAS PAYNE Ph.D.
Medical Physicist
ABR Certified
612-874-4060
(H) 483-1790

RICHARD A. GEISE, MS
Medical Physicist
ABR Certified
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MERLE K. LOKEN MD Ph.D.
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THE UNIVERSITY OF TEXAS SYSTEM CANCER CENTER

PHYSICS DEPARTMENT

M. D. Anderson Hospital and Tumor Institute

Texas Medical Center Houston, Texas 77030

Page 1 of 4

REGIONAL CALIBRATION LABORATORY

Report of Calibration

Instrument submitted by:

J. Thomas Payne, Ph.D.
Abbott-Northwestern Hospital, Radiation Therapy
810 East 27th
Minneapolis, Minnesota 55407

Date instrument received for calibration: July 11, 1979

Date instrument calibration completed: July 27, 1979

Date calibration report completed: August 3, 1979

Description of instrument:

Capintec Exposure/Exposure Rate Meter Model 192X, Serial #96C762
Capintec Chamber Model PR-06C (0.6cc, conducting plastic), Serial #CII.62752
Plastic Buildup Cap, #2752

Comments: Proper function and reliability of the radiation measuring devices described in this document are highly dependent upon handling and use. Therefore, the duration of responsibility of The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, and its employees for the calibration results extends only to the time the instruments leave the M. D. Anderson Hospital premises. It is recommended that the instrument user establish an appropriate technique of monitoring the constancy of the instrument response before and after its submission to the Regional Calibration Laboratory and on a regular basis thereafter. In addition, it is the express responsibility of the instrument user to assure himself (by personal communication if necessary) that his interpretation of the information in this document is consistent with the interpretation intended by the Regional Calibration Laboratory.

REGIONAL CALIBRATION LABORATORY
M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

Report of Calibration

INSTRUMENT:

Capintec Chamber Model PR-06C (0.6cc, conducting plastic), Serial #CII.62752
Plastic Buildup Cap, #2752

SCALES, SWITCH POSITIONS, AND CONDITIONS:

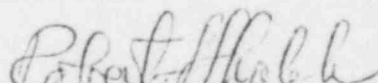
Chamber Only

Field Size: $10 \times 10 \text{ cm}^2$
Preirrad. Leakage: $-2 \times 10^{-14} \text{ A}$
Orientation: Air hole toward beam
Nominal Full Scale: N/A
Polarizing Voltage: -300 V

BEAM QUALITY	EXPOSURE RATE (R/min)	CALIBRATION* FACTOR (R/C)	% FULL SCALE or (Total Exposure)
Cobalt-60	30	$5.00_0 \times 10^9$	(70 R)

EXAMPLE: Assume the chamber described above is being used with the electrometer and switch settings described on page 4, with ELECTROMETER, NORMAL, HIGH that the temperature-pressure correction is 1.000, and that the reading is 100.0 (i.e. 50% full scale), then the exposure for Cobalt-60 radiation would be $100.0 \times 0.992 \times 10^{-9} \times 5.000 \times 10^9 = 496 \text{ R}$.

*At 22°C, 760 mmHg: The chamber was determined to be open to atmospheric communication.

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Robert J. Shalek

REGIONAL CALIBRATION LABORATORY
M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

Report of Calibration

INSTRUMENT:

Capintec Exposure/Exposure Rate Meter Model 192X, Serial #96C762

SCALES, SWITCH POSITIONS, AND CONDITIONS:

Electrometer Switch: Position
 PROBE SELECTOR: See Below
 COMPENSATION FACTOR: 1.00
 METER RANGE: See Below
 EXPOSURE LEVEL: See Below
 MODE: TOTAL

NOTE: ZERO ADJUST was adjusted to give zero in the RESET MODE.
 BACKGROUND was adjusted for zero electrometer drift with the switch settings indicated above and with the chamber disconnected.

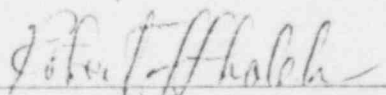
CHARGE SENSITIVITY:

PROBE SELECTOR	METER RANGE	EXPOSURE LEVEL	CHARGE SENSITIVITY (C/reading)	FULL SCALE READING	*APPROXIMATE FULL SCALE (R)
ELECTROMETER	EXTENDED	HIGH	$0.99_4 \times 10^{-9}$	1999	9935
ELECTROMETER	NORMAL	HIGH	$0.99_2 \times 10^{-9}$	199.9	990
ELECTROMETER	NORMAL	MEDIUM	$0.99_5 \times 10^{-9}$	19.99	100
ELECTROMETER	NORMAL	LOW	$1.00_1 \times 10^{-9}$	1.999	10
A	EXTENDED	HIGH	$0.208_9 \times 10^{-9}$	1999	2090
A	NORMAL	HIGH	$0.208_3 \times 10^{-9}$	199.9	210
A	NORMAL	MEDIUM	$0.209_2 \times 10^{-9}$	19.99	20
A	NORMAL	LOW	$0.210_7 \times 10^{-9}$	1.999	2

*With a 0.6cc ionization chamber

NOTE: The charge sensitivity was linear to within $\pm 0.1\%$ or the precision of reading (whichever is greater) from 25% to 95% full scale.

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 Robert J. Shalek

CURRICULUM VITAE

J. THOMAS PAYNE

Address: Abbott-Northwestern Hospital
Radiation Therapy
810 East 27th Street
Minneapolis, Minnesota 55407

BIRTH

Salina, Kansas - May 18, 1944

DEGREES

Ph.D. Radiation Biophysics (Honors), Kansas University 1970
B.S. Radiation Biophysics and Mathematics, Kansas University 1966

HONORS

Kansas University Honor Scholarship - 4 years
AEC Fellowship in Health Physics - 3 years
Sigma Pi Sigma
Associate Editor Journal of Neuroradiology

BOARD CERTIFICATION

American Board of Radiology (Radiological Physics) 1974

BOARD EXAMINER

American Board of Radiology June 1976, June 1977, December 1978

EXPERIENCE

NSF Research Assistant 1964-1965
AEC Reactor Site, Idaho Falls Summer 1967
Teaching Assistant, Kansas University 1968
Radiological Physicist, University of Minnesota
Instructor 1970-1972
Assistant Professor 1972-1977
Associate Professor 1977-1979
Radiological Physicist, Abbott-Northwestern Hospital
1979-present

SOCIETY MEMBERSHIP

AAPM (North Central)
Society of Nuclear Medicine
Health Physics Society
American College of Radiology (Physics)
Minnesota Radiology Society
Society of Radiological Engineers

COMMITTEES

AAPM Board of Directors 1975-1978
Diagnostic Committee (AAPM) 1974-1977
Regional Organization Committee 1975-1979
Computerized Tomography Task Force
Radiation Protection Task Force
AAPM National Meeting - Coordinator
(Minneapolis 1980)
Minnesota Breast Cancer Task Force 1976-1977,
NEMA/AAPM CT Committee
Minnesota Radiation and Radioisotopes Committee
Minnesota Radiological Standards Committee
Task Force on X-ray Operator Licensing
AAPM CT Repository Sub-committee

SEARCH

1. A Radiation effect from tritium and x-ray in mice
2. Xe-133 in evaluation of tumor vascularity
3. Anger camera performance
4. Scintiphography of Anger Camera CRT's
5. Resolution limits of Anger Camera CRT's
6. Tomography with Anger Camera
7. Radiation Exposure - Diagnostic/Nuclear Medicine
8. CT scanning-performance evaluation and phantom design
9. CT Tomochemistry
10. Compensation filters for spine radiography

PUBLICATIONS

Over 30 scientific publications in radiological physics

PRESENTATIONS

Over 100 major presentations - RSNA, AAPM, SNM, MRS and invited seminars

American Roentgen Ray Course Instructor	1975, 1976
X-ray Quality Assurance MSRT	March, 1976
Computerized Tomography, Penn-Ohio AAPM	March, 1976
Progress in Computerized Tomography, Mayo Clinic	May, 1976
Central Chapter Continuing Education, Milwaukee	May, 1976
American Society of Neuroradiology, Atlanta	May, 1976
Netherlands 75th Anniversary, Haag, Netherlands	June, 1976
Fourth International Conference Medical Physics, Ottawa	July, 1976
AAPM Tutorial Course, Mayo Clinic	Sept., 1976
NIH Computerized Tomography Meeting	Oct., 1976
RSNA CT paper	Nov., 1976
1st Interamerican CT Course Jamaica	Jan., 1977
CT International Symposia Miami	April, 1977
Mayo Clinic - Progress in CT	May, 1977
MIT Principles of CT	July, 1977
Roentgen Ray Society, Course Instructor	Sept., 1977
German International CT Symposia Heidelberg	Oct., 1977
Minnesota Continuing Education Course - Special Imaging	Nov., 1977
ACR - North Dakota CT Update	Feb., 1978
Loyola - CT Course	Feb., 1978
Rush-Presbyterian CT Course	Oct., 1977
Pfizer Symposia Series	1977-78
Neuroradiology Post Course - Albert Einstein, New York	May, 1978

GRANTS

Co-investigator	NIH/NCI QTG project (proposed)	\$275,186
Investigator	Graduate School (1974)	\$ 2,000
Investigator	Graduate School (1973)	\$ 3,000
Investigator	Minn. Med. Foundation (1972)	\$ 10,000
Investigator	Graduate School (1971)	\$ 2,000

BIBLIOGRAPHY

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2. Payne, J. T. and Shaw, E. I. : "A Radiation Effect from Low Doses of Tritiated Thymidine or X-rays." Radiation Research 47: 123-142, 1971.
3. Payne, J. T., Moore, R., Wahner, H., Loken, M. K.: "Measurement of Cortical Bone Thickness by a Radionuclide Technique." (Abstract) J. Nucl. Med. 6: 455-6, 1971.
4. Prusak, M., Edlich, R.F., Payne, J. T., Madden, J., Edgerton, M.T., and Wangenstein, O. H.: "Studies in the Management of the Contaminated Wound. IX. Quantification of the Evans Blue Dye Content of Open and Primary Closed Surgical Wounds." Amer. J. Surg. 125: 5, 585-588, 1973.
5. Loken, M. K., Ponto, R. A., Payne, J. T., and Goldberg, M. E.: "Dual Isotope Renal Studies Using a Scintillation Camera and Computer." Proceedings of 2nd International Symposium on Radionuclides in Nephrology, Berlin, Germany April, 1974.
6. Payne, J. T. and Loken, M. K.: "Considerations of Radiation Dose in the Practice of Nuclear Medicine." (Abstract) American Public Health Meeting Proceedings, October 11-15, 1971.
7. Payne, J. T. and Loken, M. K.: "Selection of 35mm film for Scintiphography." submitted for publication in Radiology, Proceedings of RSNA Meeting, Nov. 29 Dec. 3, 1971.
8. Loken, M. K., Payne, J. T., and Ponto, R. A.: "Current Concepts in the Practice of Nuclear Medicine." Minnesota Medicine 55: 435, 1972.
9. Song, C. W., Payne, J. T., and Levitt, S. H.: "Vascularity and Blood Flow in X-irradiated Walker Carcinoma 256 of Rats." Radiology 104: 3, 693-697, 1972.
10. Payne, J. T., Williams, L. E., Ponto, R.A., Goldberg, M. E. and Loken, M. K.: "Comparison and Performance of Anger Type Cameras." Radiology 109:2, 381-386, 1973.
11. Payne, J. T., Loken, M. K. and Chandler, W. M.: "Scintiphography of Anger Camera Cathode Ray Tube Displays." Radiology 109:3, 728-730, 1973.
12. Loken, M. K. and Payne, J. T.: "Radioisotopes in the Practice of Medicine: A Useful Tool and a Potential Hazard." Symposium of Biological Trauma, University of Minnesota, June, 1973.
13. Loken, M. K., Payne, J. T., Ponto, R. A. and Kronenberg, R. S.: "Dual-Camera Studies of Pulmonary Function with Computer Processing of Data." J. Nucl. Med. (Abstract) 14:6, 422, 1973.
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15. Ponto, R. A., Loken, M. K. and Payne, J. T.: "Dual-Isotope Renal Studies Using a Scintillation Camera." (Abstract) J. Nucl. Med. 14:6, 441, 1973.
16. Payne, J. T., Reinke, D. and Loken, M. K.: "Tomography Using an Unmodified Anger Camera." J. Nucl. Med. 15:6, 439-441, 1974.
17. Williams, L. E., Ponto, R. A., Goldberg, M. E., Payne, J. T. and Loken, M. K.: "A Dual Camera - Dual Isotope Data Acquisition System for Nuclear Medicine Studies." Proceedings of the Third Symposium on Sharing of Computer Programs and Technology in Nuclear Medicine, Miami, Fla., June 15-16, 1973, Conference 730627. USAEC Tech. Info. Cen., Oak Ridge, Tenn., 1973, pp. 123-132.
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1. Payne, J.T. and McCullough, E.C.: "Noise, Low-Contrast Detectability and Patient Dosage in Computed Tomography" International Symposium on Computer Tomography in Nontumoral Diseases of the Brain, Spinal Cord and Eye, (abstract) NIH, p3, October, 1976.
2. Payne, J.T. and McCullough, E.C.: "Basic Physics of CT Scanning" American Society of Neuroradiology - Abstract Book, May, 1976.
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7. Payne, J.T. and McCullough, E.C.: "Performance Parameters of CT Scanners" J. Computer Assisted Tomography 1:3, 356 (symposium abstract), July 1977.
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3. McCullough, E.C. and Payne, J.T.: "Radiation Dose in CT Scanning" To be published Radiology 1978.

4. Payne, J.T. (Editor): Physics Principals of CT, (book in preparation for 1978).