



DEPARTMENT OF VETERANS AFFAIRS

Medical Center
Batavia, N.Y. 14020

January 28, 1991

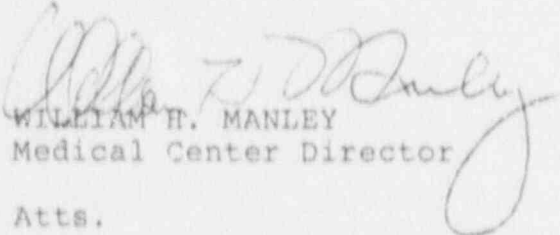
In Reply Refer To: 513/115

U. S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA. 19406

License No. 31-08946-02

SUBJ: Reply to A Notice of Violation

In reply to your letter dated December 28, 1990, the attached information is submitted documenting the specific actions taken to correct the issues identified in the NRC inspection conducted on September 18, 1990.


WILLIAM H. MANLEY
Medical Center Director

Atts.

9102050207 910128
REG1 LIC30
31-08946-02 PDR

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11

REPLY TO A NOTICE OF VIOLATION

Veterans Administration Medical Center
Batavia, New York 14020

9204 January 18, 1991

RE: Docket No. 030-0924
License No. 31-08946-02
EA 90-184

A. Violation:

Item 12 of the application dated June 9, 1978, (Personnel Training Program and Frequency) states, in part, that all trainees are licensed and registered radiological technologists and that each trainee is given 40 hours of didactic lectures on subjects related to radiation safety before being allowed to participate in the handling and preparation of isotopes and patient studies.

Contrary to the above, between June 1988 and July 1989, a licensee trainee was not a licensed and registered radiologic technologist, nor did the trainee receive 40 hours of didactic lectures on subjects related to radiation safety before being allowed to participate in the handling and preparation of isotopes and patient studies.

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

Reason for the violation:

1. It is true that the current technician did not have any formal previous training. The nuclear medicine technologist position was vacated in 1988 and a licensed and registered replacement could not immediately be found. Consequently, an existing employee of Batavia VAMC was transferred to this line and was provided on-the-job training. Her training started from the day she was assigned to the Nuclear Medicine department. It was an ongoing, on-the-job training which included basics and fundamentals of a small-size nuclear medicine imaging department. She received on-the-job instructions and supervision not only from the outgoing Nuclear Medicine Technician, but also from the Nuclear Medicine physician. She was also rotated through VAMC Buffalo, which is a bigger nuclear medicine facility, for further orientation and learning.

2. Radiation safety topics were discussed with her by the nuclear medicine physician. For a period of one year, the outgoing technologist demonstrated various aspects of radiation safety at the time the current technician was assigned to the department. In addition to the training that was provided on the job at Batavia/Buffalo VAMC's, the current technician was sent to attend

Batavia VAMC Reply - January 18, 1991

lectures on radiation safety at the State University of New York at Buffalo. Given the circumstances and the background knowledge of the current technician, we were of the opinion that it would be best for her to get one-to-one instructions before going to any didactic lectures. She did receive some didactic lectures as documented in Attachment 1.

Corrective steps that have been taken and the results achieved:

She will attend an additional 5 hours on February 21, 28, and March 7, 1991. Ongoing teaching sessions (of at least 40 total hours) are currently being presented by the Batavia VAMC nuclear medicine physicians.

The VAMC has approved recruitment of a certified nuclear medicine technologist. We are currently advertising the new position.

Corrective steps that will be taken to avoid further violations:

We will continue to provide required site-specific training to the current as well as any new employee, while an active search for a trained CNMT or ARRT with nuclear background is underway.

Date when full compliance will be achieved:

Currently, there is a nationwide shortage of available nuclear medicine technologists and no applicants have so far responded to our advertisements. We hope that there may be some response from the graduating class of nuclear medicine technology program of June 1991. In the event the position is not filled with a CNMT/ARRT by June 1991, the option would be to continue on-the-job training and provide required didactics to the current technician.

B. Violation:

The licensee's letter dated March 28, 1979 states, in part, that ancillary medical center employees, (nursing, clerical, housekeeping, security, etc.) will be included in the radiation safety training program which includes annual refresher training.

Contrary to the above, as of September 18, 1990, the licensee clerical staff had never received the annual radiation safety refresher training.

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

Reason for the violation:

We were not aware that clerical staff should be included in the training of ancillary personnel.

Corrective steps that have been taken and the results achieved:

A training lecture was presented to the clerical staff on October 25, 1990. This included a question and answer period at the end of the lecture (Attachment 1).

Corrective steps that will be taken to avoid further violations:

The ancillary personnel, including clerical staff, will receive annual refresher training in radiation safety and their attendance will be documented and included in RSC minutes for continued monitoring.

Date when full compliance will be achieved:

The corrective steps noted above have already been implemented.

C. Violation:

Item 2 of the licensee's letter dated December 10, 1985 states, in part, that the procedures described in Appendix D of Regulatory Guide 10.8, Revision I (dated October 1980) will be followed. Appendix D, Section 1, Paragraph A.2 of this Regulatory Guide requires that survey meters shall be calibrated at least annually and after servicing.

Contrary to the above, two survey meters (a Victoreen 491 survey meter and a Keithley 36100 survey meter) were not calibrated annually in that neither meter was calibrated in 1989.

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

Reason for the violation:

Calibration of Survey Meters annually: Survey meters were sent out for calibration every year. In 1989, Victoreen survey meter was sent for calibration on September 27, 1989, but was returned to us in February 1990. In March 1990, after receiving the Victoreen, the backup instrument (Keithley) was sent for calibration. Because of this delay in calibration by the vendor, and the paper work pertaining to calibration, there was an overlap (Attachment 2).

Corrective steps that have been taken and the results achieved:

We will have our survey meters calibrated locally at the State University of New York at Buffalo, by an individual licensed by the New York State Department of Health to perform this service; thereby, avoiding delays due to paperwork, shipping, etc. The previous arrangements of sending survey meters for calibration to outside vendors will be utilized as a backup, in the event there are problems locally.

Corrective steps that will be taken to avoid further violations:

We have taken measures to initiate paper work at least 4 months prior to the date of calibration to avoid such overlaps and delays in

the future.

In addition, meters will be calibrated locally. Due dates will coincide with semi-annual audit visits by the consulting University health physicists thus ensuring ongoing monitoring.

Date when full compliance will be achieved:

The survey meters have already been sent for calibration for 1991 and currently we are using the loaner survey meter. The corrective steps noted above have been fully implemented.

D. Violation:

Item 2 of the licensee's letter dated December 10, 1985 states, in part, that the procedures described in Appendix B of Regulatory Guide 10.8, Revision 1, will be followed. Appendix B (Medical Isotopes Committee), Section 9 (Duties), requires that the Medical Isotopes Committee ensure that the byproduct materials license is amended, when necessary, prior to any changes in facilities or personnel as specified in the license.

Contrary to the above, the Medical Isotopes Committee did not ensure that the byproduct materials license is amended, when necessary, prior to any changes in facilities or personnel as specified in the license, as evidenced by the following examples:

1. The licensee changed radiation safety officers in 1980 and 1988; however the Medical Isotopes Committee did not ensure that the license was amended to reflect the change in personnel; and

2. In the latter part of 1988 through June 1989, the Nuclear Medicine scan room and Hot Lab were relocated from the location described in the license application dated June 9, 1978; however, the Medical Isotopes Committee did not ensure that the license was amended to reflect the changes in the facility.

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

Reason for the violation:

1. Dr. Dare was added to the license as an authorized user (Amendment #9) in June 1980. Although Dr. Puri was added to the license (Amendment #10) as an authorized user, Dr. Dare remained the RSO from May 1980 until June 1988 when replaced by Dr. Husain. VA Central Office (VACO), Washington, D.C., was notified at that time). Dr. Husain was appointed as a staff physician in nuclear medicine on January 31, 1988, under the supervision of Dr. Puri. He was appointed RSO on June 3, 1988. VACO was notified at that time. As Batavia had previously provided VACO the notification of Dr. Husain as RSO, this fact was not included on the request dated July 1990, that he be added as an authorized user. We were unaware that apparently there had been no communication between VACO and the NRC. It is our understanding that the staff of NRC Directorate of Licensing requested

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that all matters germane to the use of radionuclides be referred to VACO initially rather than direct to NRC. Although Batavia VA made the necessary notifications to VACO, we acknowledge that the NRC was not in receipt of the notifications. Supporting documentation is contained in Attachment 3.

2. Since the relocation of the camera and hot lab were within the existing nuclear medicine department, it was not apparent to the Radiation Safety Committee that license amendment was required.

During 1988-1989, remodeling of the existing Nuclear Medicine Department was done to accommodate the new SPECT camera. The generator and dose calibrator were moved to the adjacent room within the department facing outside walls. Although no formal close out survey report was done, the areas in question were surveyed daily and the survey records of the old department and Rooms 303 and 307 are on file and did not exceed the permissible limits (Attachment 3).

Failure to obtain a license amendment for renovation and alteration of the department was certainly an oversight.

Corrective steps that have been taken and the results achieved:

1. License amendments have already been sent to the NRC through Director Nuclear Medicine VA Central Office. In addition, a copy was sent directly to the NRC.

2. The Radiation Safety Committee and the RSO are informed that all planned changes in the nuclear medicine facility must receive prior license amendment approval before implementation.

Corrective steps that will be taken to avoid further violations:

1. The names of RSO and the membership of RSC will be a check list item on RSC meetings and annual ALARA audit report. The corrective steps are the same as noted above.

2. The need to obtain prior approval has been added to a mandatory engineering preconstruction check list (Attachment 4).

Date when full compliance will be achieved:

The corrective steps noted above have been implemented and an amendment to this effect has been sent to NRC.

E. Violation:

The Model ALARA Program dated February 10, 1982, paragraph B states, in part, that licensee management 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 and consultations with the radiation protection staff and outside consultants.

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Contrary to the above, as of September 18, 1990 the formal annual reviews of the radiation safety program including ALARA considerations, were inadequate in that the licensee failed to identify numerous violations of their license commitments.

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

Reason for the violation:

We acknowledge the NRC inspection did identify 10 violations. We are of the opinion that none of the violations posed a serious health or safety concern. Most of the violations centered around methods of documentation that were used which were different than the methods prescribed by NRC. Other violations occurred because of the small size of the staff (one physician, one tech and one clerical person) and the limited number of pieces of equipment to be surveyed (i.e. one survey meter with one back up).

Corrective steps that have been taken and the results achieved:

The hospital will use the services of one of its consulting health physicist to conduct semi-annual audits of the Nuclear Medicine Department. This semi-annual audit will include a formal ALARA reviewed in the prescribed format.

Corrective steps that will be taken to avoid further violations:

A detailed written report of the audit findings will be prepared by the health physicist and submitted to the RSO for action. These external audit reports and planned corrective action will be presented to the Radiation Safety Committee for continuous monitoring.

Date when full compliance will be achieved:

The consulting health physicist is scheduled to conduct an external audit during January 1991.

F. Violation:

Item 2 of the licensee's letter dated December 10, 1985 states, in part, that the procedures described in Appendix I of Regulatory Guide 10.8, Revision 1 will be followed. Appendix I, (Area Survey Procedures), Section 5 requires that a permanent record be kept of all survey results including an identification of the survey equipment used, with the serial number and pertinent counting efficiencies and the name of the person performing the survey.

Contrary to the above, as of September 18, 1990, area survey records did not contain all of the required information. Specifically, the survey records did not include an identification of the survey equipment used including the serial number and pertinent counting efficiencies, and the name of the person performing the survey.

This is a Severity Level V violation. (Supplement VI)

Reason for the violation:

1. Most of the time we use only one survey meter (Victoreen) except when it is sent out for calibration. Only then do we use our backup survey meter (Keithley).

2. The Nuclear Medicine Department is a small department consisting of one physician and one tech with the same person performing the survey. Because the person performing the survey was self evident to the two members of the department, the requirement to record the information was an oversight.

Corrective steps that have been taken and the results achieved:

1. A new survey record form has been adopted which contains all of the required information, including the serial numbers of survey equipment used, counting efficiencies, and the name of the person performing the survey. This form is included in the new forms attachment No 10.

2. The results of the calculations for Efficiency of the Packard Multiprias 2 Well Counter is dated October 11, 1990 (Attachment 4) and shows a TC-99m/co-57 window efficiency for cobalt 57 and 97.5% and open window efficiency for Cobalt 57 at 99.1%. Retrospectively, it is comforting to note, the conversion of cpm to dpm will be below 11,000 leak NRC limit.

Corrective steps that will be taken to avoid further violations:

All new forms will be checked by RSO and reviewed at RSC meetings to assure that all required elements are appropriately documented.

Date when full compliance will be achieved:

We are currently using the new survey record form

G. Violation:

Item 2 of the licensee's letter dated December 10, 1985 states, in part, that the procedures described in Appendix D of Regulatory Guide 10.8, Revision 1 will be followed for calibration of the dose calibrator.

1. Appendix D, Section A.4 requires that a geometrical variation test be performed at the time of installation of the dose calibrator.

Contrary to the above, a geometrical variation test was not performed at the time the dose calibrator was installed.

This is a Severity Level V violation (Supplement VI)

2. Appendix D, Section C.6 requires that for dose calibrator constancy testing, a graph will be plotted to indicate the predicted activity of each source based on decay calculations and the + 5 percent

limit on the graph.

Contrary to the above, as of September 18, 1990, the dose calibrator constancy test did not include a graph indicating the predicted activity of each source based on decay calculations and the \pm 5 percent limits on the graph.

This is a Severity Level V violation. (Supplement VI)

3. Appendix D, Section B.4 requires, that for dose calibrator linearity testing, a graph of the measured net activity versus the calculated activity will be plotted.

Contrary to the above, as of September 18, 1990, a graph of the measured net activity versus the calculated activity was not plotted for the dose calibrator linearity test.

This is a Severity Level V violation. (Supplement VI)

Reason for the violation:

1. It was believed that geometry test data was supplied by the manufacturer at the time of purchase/installation.
2. The constancy decay values and \pm 5 percent limits were logged but not graphed. NRC regulatory guide 10.8, Revision 2, dated August 1987, appendix C3c states, "For each source used, either plot on graph paper or log in a book the background level for each setting checked and the net activity of each constancy source."
3. The linearity test records were tabulated every quarter. All values were within the \pm 5% limit. The lack of the dose calibrator constancy test to include a graph represents an oversight.

Corrective steps that have been taken and the results achieved:

1. A geometry variation test has since been carried out and found to be in compliance (Attachment 5).
2. We will follow Regulatory Guide 10.8, Revision 2, Section C.3.d, regarding constancy data, which permits one to "Plot or log the results"... we will log the results. This is now included in the procedure manual.
3. Linearity data has been graphed.

The above results were achieved (Attachment 5).

Corrective steps that will be taken to avoid further violations:

The records of these dose calibrator tests will be reviewed each quarter by the RSO and semi-annually by the consulting health physicist to assure compliance with Appendix C of Regulatory Guide 10.8, Revision 2. The findings will be reviewed by RSC on a quarterly basis.

Date when full compliance will be achieved:

The corrective steps noted above have been implemented.

H. Violation:

10 CFR 35.59(d) requires, in part, that a licensee in possession of any sealed source shall retain leakage test records which contain the model number and serial number (if assigned), of each source tested, the estimated activity, the measured activity expressed in microcuries and a description of the method used to measure each test sample.

Contrary to the above, the sealed source leakage test records did not include all the required information. Specifically, the records did not include:

1. the model number and serial number of each source tested;
2. the estimated activity of the sealed source;
3. the measured activity of the sealed source expressed in microcuries; and
4. a description of the method used to measure each test sample.

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

Reason for the violation:

1. The sealed sources were identified by a unique number on our records. It is acknowledged that this number was not the serial number

2. The estimated activity of the sealed source was being calculated (Attachment 6). Inadvertently this documentation may have been overlooked by the NRC inspector.

3. Conversion of cpm to dpm had been discussed by the RSO with the physicist. They agreed the issue of significance of converting cpm to dpm, especially when dealing with such low count rates, was indeed an academic exercise. This conversion was delayed until the physicist could bring the necessary equipment and demonstrate to him the method of conversion.

4. The leak test activity was being measured in gamma well counter with appropriate sensitivity. However, we didn't convert CPM to DPM because of the very low counts.

Corrective steps that have been taken and the results achieved:

A new form has been adopted to quarterly record the required information and is included in the new forms Attachment 7.

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Since the inspection, the conversion of cpm to dpm has been implemented. We have established and implemented the model procedure for leak testing sealed sources that was published in Appendix H to Reg. Guide 10.8, Revision 2.

Corrective steps that will be taken to avoid further violations:

All new leak test forms will be checked every six months by RSO to assure that the required elements are included. In addition, leak tests will be reviewed during the scheduled audit of our consulting health physicist during January 1991 and information forwarded to the Radiation Safety Committee for review and continuous monitoring.

Date when full compliance will be achieved:

The new form is already being used and desired information recorded.

I. Violation:

10 CAR 35.59(g) requires, in part, that a licensee in possession of a sealed source shall conduct a quarterly physical inventory of all such sources in its possession.

Contrary to the above, as of September 18, 1990, the physical inventory of sealed sources in the licensee's possession was not being conducted quarterly. Specifically, the sealed source inventories were conducted annually.

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

Reason for the violation:

Sealed sources were being counted for leak test every quarter instead of semi-annually. Formal physical inventory was recorded on a separate record annually. We thought that quarterly leak test record would suffice for the purpose of quarterly physical inventory.

Corrective steps that have been taken and the results achieved:

A separate record of quarterly sealed source inventory is being maintained. Supporting documentation is contained in New Forms Attachment No. 7.

Corrective steps that will be taken to avoid further violations:

On going monitoring will be accomplished by quarterly review of this record by the RSO and Radiation Safety Committee. In addition semi-annually review will be performed by the consulting health physicist.

Date when full compliance will be achieved:

The corrective steps noted above have been implemented.

J. Violation:

10 CFR 20.201(b) requires that each licensee make such surveys as may be necessary to comply with the requirements of Part 20 and which are reasonable under the circumstances to evaluate the extent of radiation hazards that may be present. As defined in 10 CFR 20.201 (a), "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above, the licensee did not make surveys to assure compliance with 10 CFR 20.105(b) which limits radiation levels in unrestricted areas. Specifically, as of September 18, 1990, the licensee did not survey a rest room wall (an unrestricted area) adjacent to the hot lab waste storage closet.

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

Reason for the violation:

1. At the time of the inspection radiation levels in the nuclear medicine imaging room, hot lab and rest room were measured. The hot lab and imaging room levels were found to be near background. The inspector located one small area along the back wall of the rest room which measured 0.15 - 0.20 mR/hr. This wall is adjacent to the hot lab waste storage closet. The low exposure level and the occupancy of the rest room indicate no regulatory limit was being exceeded at the time of the inspection. The rest room is located within the Nuclear Medicine Department and therefore was considered to be a restricted area.

Corrective steps that have been taken and the results achieved:

To ensure compliance with the dose rate limits established in 10 CFR 20.105 the patient's rest room has been added to the areas to be surveyed. This has been accomplished by the implementation of a new form which includes the patient's lavatory. This form is included in the new forms Attachment 7.

Corrective steps that will be taken to avoid further violations:

The RSO/Chief of Nuclear Medicine will review periodically daily survey results. Continuous monitoring will be done by the Radiation Safety Committee through period review of findings.

Date when full compliance will be achieved:

The corrective steps noted above have been implemented.

ATTACHMENT #1
Training Quality of Personnel

Molly Jankowski Training Hours

<u>Date</u>	<u>Subject</u>	<u>Training Hours</u>
07/88	Radiation Safety - Bill Quin	2
08/04/88	Radiation Safety - Bill Quin	2
08/11/88	Radiation Safety - Bill Quin	2
04/26/89	Proper Use Of Well Counter	4
04/10/89 -04/14/89	Instrumentation Gamma Camera System	40
07/31/89	Review of Various Nuclear Medicine Procedures VAMC Buffalo	8
08/04/89	Personnel and Laboratory Monitoring Proper Handling, Preparation and Counting of Radioactivity. Conduct Contamination Surveys Perform Decontamination Disposal Procedures	2
08/11/89	Survey Meter Calibration	2
09/26/89	Working With Capintec Dose Calibrator - Operational Review VAMC Buffalo	3
10/04/90	Operating Procedures - Dr. Husain Radiation Safety Committee Personnel Monitoring Radioactive Material Package Receipt Package Return To Supplier Radionuclide Use Waste Disposal	2
10/25/90	Instrument Calibration and Maintenance Radiation Safety Lecture - Dr. Husain	2
11/19/90	Geometry and Accuracy of Dose Calibrator	1
12/10/90	Review of Radiation Safety Procedures	1

Dr. Husain discussed the following topics with Molly Jankowski on 10/4/90.

- 1) Documents and Notices files.
- 2) Operating Procedures
- 3) Radiation Safety Committee
- 4) Personnel Monitoring
- 5) Procedures Performed and Documented as Required
- 6) Radioactive Material Package Receipt
- 7) Package Return to Supplier
- 8) Radionuclide Use
- 9) Waste Disposal
- 10) Instrument Calibration and Maintenance
- 11) Health Physics Equipment

amf

N. M. Technology - Lessons Education Unlimited

TRAINING/INSERVICE

4/10/89 - Picker applications coordinator - Gamma Camera system - Dr. Husain
to
4/14/89

4/26/89 Ron Koral held inservice training session to familiarize the proper use of Well Counter (Packard Co.) from 1:00pm to 4:00pm. Dr. Husain and Molly Jankowski attended.

MOLLY JANKOWSKI

7/31/89 - 8 hrs. at VAMC, Buffalo, NY.

Training given by Matt S. on Computer and TOMO

Training given by Judy D. - paperwork, reviewed tests that should be done, record keeping, reviewed Schilling Test.

8/4/89 - 2 hrs at Univ. of Buffalo

Laboratory Session I - Personnel and Laboratory Monitoring - to learn proper handling techniques, prepare and count radioactive samples, conduct urine and thyroid bioassays, conduct contamination surveys, and perform decontamination and disposal procedures.

8/11/89 - 2 hrs. at Univ. of Buffalo - Survey Meter Calibration - to become familiar with the common use and calibration of radiation survey meters.

9/26/89 1:00pm - 4:00pm training program with Judy D. Reviewed Capintec Dose Calibrator different tests that should be performed. (At VAMC, Buffalo, NY)

GMJ

ns
Administration

Memorandum

January 19, 1989

Chief, Nuclear Medicine Service

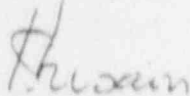
Subject: Authorization for M. Jankowski to
go to VAMC, Buffalo for training.
Richard Droske, Acting, Medical Center Director

THRU: Chief of Staff

Molly Jankowski is currently being trained to perform basic functions of a nuclear medicine technician. She had no previous experience or training in a nuclear medicine department. In order to provide her a broader exposure and interaction with experienced and trained nuclear medicine technologists, I would like her to spend a few days at VAMC, Buffalo and possibly some other hospitals with a busy nuclear medicine department.

The initial orientation arrangements for Molly Jankowski have already been made with the Chief of Nuclear Medicine and the Chief Nuclear Medicine Technologist at VAMC, Buffalo. She will be going to Buffalo VAMC on Friday, January 20, 1989, and this will be done on a continuing basis once a week for the next few weeks.

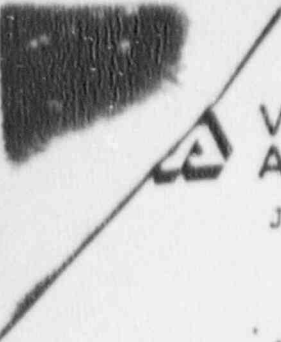
It is expected that the above arrangements will help in providing some of the basic educational and training needs for Mrs. Molly Jankowski. Your approval to carry out this training objective is requested.



SYED S. HUSAIN, M.D.
Chief, Nuclear Medicine

APPROVE/DISAPPROVE

RICHARD DROSKE



Veterans Administration

January 19, 1989

In Reply Refer To: 513/115

J. Gona, M.D.
Chief, Nuclear Medicine Service
VAMC, Buffalo, NY

Dear Dr. Gona,

Thank you very much for allowing Molly Jankowski to spend a few days in your department and observe various procedures being performed by the technologists. Mrs. Jankowski has been working in VAMC, Batavia, NY for quite some time as a EKG Technician, and now is being cross trained to perform some of the basic functions in the department of Nuclear Medicine at Batavia under my direct supervision. It is expected that she will have an opportunity to observe and assimilate some of the basic functions performed by the nuclear medicine technologists in your department. Once again, thank you for your help and cooperation.

S. Husain

SYED S. HUSAIN, M.D.
Chief, Nuclear Medicine
VAMC, Batavia, NY 14020

Memorandum


October 22, 1990

Chairman, Radiation Safety Committee

Radiation Safety Lecture

As Indicated Below

On Thursday, October 25, 1990, I will present a Radiation Safety Lecture at 9:00am in the Medical Conference Room on 2nd floor, Building #2. The Lecture is being given as per Nuclear Regulatory Commission Rules and Regulations and it is imperative that as many employees attend as possible. Your cooperation is appreciated.



SYED S. H/SAIN, M.D.

cc: Chief, Building Management /Housekeeping Staff
Chief, Nursing Service
Chief, Engineering Service ✓
Chief, Radiology Service ✓
Chief, Police Section ✓
Chief, Laboratory Service ✓
Chief, Medical Service
Chief, Pharmacy Service
Bruce Elliott, Associate Chief, Nursing Education ✓
Chief, Dental Service ✓
Clerical and Ancillary Staff in Nuclear Medicine/Radiology Service

V.A.M.C. BATAVIA, N.Y.

RADIATION SAFETY LECTURE

OCTOBER 25, 1990

Presented by S. Husain, M.D., Radiation Safety Officer

SIGNATURE	DEPARTMENT
MM [unclear]	Int'l
J. [unclear]	B.M.S.
[unclear]	[unclear]
M. [unclear]	Med. Med.
[unclear]	B.M.S.
[unclear]	B.M.S.
[unclear]	[unclear]
[unclear]	Nursing / QA
[unclear]	Police
[unclear]	QA
[unclear]	Police
[unclear]	Nursing
[unclear]	QA Coordinator
[unclear] (Secretary Nuc. Med.)	Nuclear Med.

There was a question and answer period following the lecture.

ATTACHMENT #2

Instruments

Victoreen Survey Meter

Work order made out and submitted to Engineering Service (who sent to Bio-Med) on 9/27/89,

Received by Mr. Hise and paperwork started on 10/19/89 (with a return date of 10/26/89 requested).

Date obligated by A&MM 11/2/89 (unit cannot be sent out until money is obligated)

Unit received back at VAMC, Batavia, NY on 2/15/90

CONTROL POINT ACTIVITY LIST

OCT 25, 1990 14:41

TRANSACTION NUMBER	DATE OF REQUEST	DATE COMMITTED	DATE OBLIGATED	DATE RECEIVED
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VENDOR: ATOMIC PRODUCTS

513-87-2-118-0019	JAN 26, 1987	JAN 26, 1987	FEB 6, 1987	APR 10, 1987
513-88-2-118-0056	JAN 8, 1988	JAN 8, 1988	JAN 11, 1988	FEB 26, 1988
513-89-3-118-0091	APR 5, 1989	APR 5, 1989	APR 12, 1989	JUL 6, 1989
513-90-4-118-0116	AUG 20, 1990	AUG 20, 1990	SEP 28, 1990	Pending

VENDOR: KEITHLEY INSTRUMENTS

513-89-1-118-0016	AUG 23, 1988	AUG 23, 1988	DEC 5, 1988	DEC 6, 1988
513-90-2-118-0054	MAR 1, 1990	MAR 1, 1990	MAR 12, 1990	APR 16, 1990

VENDOR: VICTOREEN, INC

513-87-2-118-0018	JAN 26, 1987	JAN 26, 1987	FEB 11, 1987	MAR 16, 1987
513-88-3-118-0102	APR 28, 1988	APR 28, 1988	MAY 3, 1988	JUN 27, 1988
513-90-1-118-0018	OCT 19, 1989	OCT 19, 1989	NOV 2, 1989	FEB 15, 1990

September 27, 89



CAPINTEC INSTRUMENTS, INC.

REPORT OF CALIBRATION

Model CRC-30 BC Radioisotope Calibrator

serial no. 30759

Chamber: EB458

Power Supply Tested

Iometer Tested

Bias Battery Tested

Calibration

Calibration standards used for Instrument Calibration.

Radionuclide	Activity	Accuracy	Instrument Reading
Co-60	<u>99.89</u> μ Ci	<u>+1.8</u> %	set*
Co-57	<u>2550</u> μ Ci	<u>+1.9</u> %	set*
CS-137	<u>.712</u> mCi	<u>+2.3</u> %	<u>.716</u> mCi

* Co-57 and Co-60 standards are used to set the calibration.

LINEARITY TEST (optional)

Linearity of the chamber is tested by comparing the ratio of chamber outputs for high activity and low activity Tc-99m samples to that from the standard chamber.

< 5% saturation at 2 Ci

> 5% saturation at 2 Ci

DATE: 7-12-89

George P. Popier
Test Engineer

Remarks on Back +

ATTACHMENT #3

License Ammendments

ATTACHMENT #3

*copy and
1/9/86*



Veterans
Administration

January 9, 1986


In Reply Refer To: 115

Director (00/115)
VA Medical Center
Batavia, NY 14020

SUBJ: Amendment #12 to NRC License #31-08946-02 re your
application dated March 27, 1984 (Renewal thru 12/31/90)

1. The U.S. Nuclear Regulatory Commission, Region I, has forwarded the above license amendment to us: we send it to you for appropriate action.
2. Because some hospitals and individuals communicate with them directly, the staff of the NRC Directorate of Licensing has requested that all applications for licenses, renewal of licenses, and other matters germane to the use of radio-nuclides, be referred to our office initially rather than directly to them.
3. An occasional hospital sends in a single copy of its NRC request: an original and three copies should be submitted.
4. Please be assured of our earnest desire and readiness to assist you in problems pertaining to Nuclear Medicine.

Sincerely,


MARK W. WOLCOTT, M.D.
ACMD for Clinical Affairs

Enclosure

May 29, 1980

Director, Engineering Service (10A435)
VA Central Office
Washington, D. C. 20420

Subj: Radiological Safety Officer

1. Norman Dare, M. D., Chief, Radiology Service, is appointed Radiological Safety Officer at this hospital as required by MP-3, Part III, paragraph 32.32 a.

2. Please cancel designation of June 7, 1978, appointing Alan R. Winterberger, M. D.

P. J. FLANNERY
Medical Center Director

cc: Director, Nuclear Medicine (115)
00
11

*Sent to Dir. Engineering
Service at
VACC*

*W:
NRC or
Dir. Nuclear Med*

Medical Center

Datavia, NY 14020

June 3, 1988

513/11

Director, Facilities Engineering Service (085)
VA Central Office
Washington, DC 20420

SUBJ: Radiation Safety Officer

1. Syed Husain, M.D., Acting Chief, Nuclear Medicine Service, is appointed Radiation Safety Officer at this medical center as required by MP-3, Part III, paragraph 32.32a.
2. Please cancel the designation of January 8, 1985, appointing Savita Puri, M.D.

A. L. WICKHAM
Medical Center Director

*Should have
gone to Director,
Nuclear Med
↓
NRC*



Veterans
Administration

Memorandum

Date: October 31, 1990
From: Chief, Engineering Service
Subj: Renovation of Nuclear Medicine
To: Chief, Nuclear Medicine

Renovation of Nuclear Medicine, Proj. #513-85-103, began on 10/20/88 and was completed on 3/17/89.

A handwritten signature in cursive script, appearing to read 'Albert J. Iamiceli'.

ALBERT J. IAMICELI

Close out 1988

Mon
10-17
1988

PROGRAM #=12
WINDOW A=1125 BKG(1-2)= 0 0
WINDOW B=0057 BKG(1-2)= 0 0
TIME= 1.00 %SIGMA= .00 SCREENING# 0

SURVEY	
0.04	MR/n
0.02	MR/n
0.02	MR/n
0.06	MR/n
0.06	MR/n
0.034	"

PH	SH	TIME	CPMA	CPMB	FLAGS
12	1	1.00	80	156	
12	2	1.00	72	132	
12	3	1.00	76	136	
12	4	1.00	83	157	
12	5	1.00	83	152	

6. EKG DEPARTMENT

10-18

SURVEY	
0.04	MR/n
0.04	"
0.04	"

1. LAB

2. CAMERA

3. GENERATOR

10-19

SURVEY	
0.04	MR/n
0.04	MR/n
0.06	MR/n

1. LAB

2. CAMERA

3. GENERATOR

10-20

SURVEY	
2.	MR/n
2.	"
0.04	"

1. LAB

2. CAMERA

3. GENERATOR

10-21

SURVEY	
0.04	MR/n
0.2	"
0.06	"

1. LAB

2. CAMERA

3. GENERATOR

Close out

not used in old dept.

Mon
24
18

1. LAB									
2. CAMERA ROOM									
3. SCANNER ROOM									
4. GENERATOR ROOM									
5. STORE ROOM								0.06	
6. ENG DEPARTMENT								0.02	

Tues
Oct
25

								SURVEY	
1. LAB								0.02	me/n
2. CAMERA								0.02	"
3. GENERATOR								0.04	"
								SURVEY	

Wed
Oct
26

1. LAB								0.02	me/n
2. CAMERA								0.02	"
3. GENERATOR								0.04	"
								SURVEY	

Thurs
Oct
27

1. LAB								0.02	me/n
2. CAMERA								0.02	"
3. GENERATOR								0.04	"
								SURVEY	

Fri
Oct
28

1. LAB								0.02	me/n
2. CAMERA								0.2	"
3. GENERATOR								0.06	me/n

PROGRAM # = 2
 WINDOW A=CUST2 BKG(1-2)= 556 617
 WINDOW B=CUST2 BKG(1-2)= 556 617
 TIME=10.00 %SIGMA= .00 SCREENING= 0

*lose out of
Temporary Sup*

	F#	S#	TIME	CFMA	CFMB	FLAGS		
	2	1	10.00	24	25			
	2	2	10.00	21	21			
1	2	3	10.00	0	0		0.08	MR/4
	2	4	10.00	0	0			
2	2	5	10.00	0	0		0.04	"
	2	6	10.00	82	82			
3.	2	7	10.00	18	17		0.02	"
			4. GENERATOR ROOM				0.08	"
			5. STORE ROOM				0.04	"
			6. EKG DEPARTMENT				0.02	"
							SURVEY	
			1. LAB				0.08	"
			2. CAMERA				0.04	"
			3. GENERATOR				0.08	"
							SURVEY	-
			1. LAB				0.08	"
			2. CAMERA				0.04	"
			3. GENERATOR				0.08	"
							SURVEY	
			1. LAB				0.08	"
			2. CAMERA				0.04	"
			3. GENERATOR				0.08	"
							SURVEY	
			1. LAB				0.08	"
			2. CAMERA				0.04	"
			3. GENERATOR				0.08	"

1-30
1989

31

2-1

2-2

2-3

first time
new Dept.

1989

2-6

4. GENERATOR ROOM

SURVEY

0.00

0.00

0.00

0.06

5. STORE ROOM

0.06

6. ENO DEPARTMENT

0.00

SURVEY

1. LAB

0.06

no/11

2. CAMERA

0.00

3. GENERATOR

0.00

2-7

SURVEY

1. LAB

0.06

11

2. CAMERA

0.02

11

3. GENERATOR

0.06

11

2-8

SURVEY

1. LAB

0.08

11

2. CAMERA

0.04

11

3. GENERATOR

0.08

11

2-9

SURVEY

1. LAB

0.06

11

2. CAMERA

0.04

11

3. GENERATOR

0.08

11

2-10

PROGRAM # = 2
 WINDOW A=CUST2 BKG(1-2)= 442 512
 WINDOW B=CUST2 BKG(1-2)= 442 511
 TIME=10.00 %SIGMA= 5.00 SCREENING=

Close out of
 Temporary Dept.

	P#	S#	TIME	CPMA	CPMB	FL	SURVEY
3-20-89	1. LA	1	10.00	37	37		
		2	10.00	27	28		0.08 m/n
		3	10.00	37	40		0.01 m/n
	2. CA	4	10.00	42	43		0.04 "
	3. SC	5	10.00	26	25		0.08 "
		6	10.00	28	29		0.04 "
		7	10.00	26	26		0.04 "
	4. GE						0.04 "
	5. STORE ROOM						0.02 "
	6. ENG DEPARTMENT						0.02 "
							SURVEY
3-21	1. LAB						0.08 m/n
	2. CAMERA						0.04 m/n
	3. GENERATOR						0.08 "
							SURVEY
3-22	1. LAB						0.08 m/n
	2. CAMERA						0.01 m/n
	3. GENERATOR						0.05 m/n
							SURVEY
3-23	1. LAB						0.04 m/n
	2. CAMERA						0.04 "
	3. GENERATOR						0.04 "
							SURVEY
3-24	1. LAB						0.08 "
	2. CAMERA						0.04 "
	3. GENERATOR						0.08 "

ENGINEERING PRECONSTRUCTION CONFERENCE CHECKLIST

- A. Name of V.A. Resident Engineer
- B. Name of Contractor's Foreman on Job
- C. Hours of work and no work on holidays
- D. Parking of vehicles and trailers
- E. Storage area for equipment and materials
- F. Contractor's Daily Logs, submit weekly
- G. Submit Progress Curve and Schedule of Costs (4 copies) prior to starting
- H. Submit Payrolls (2 copies) weekly
- I. Submittals of literature/drawings, etc. (3 copies)
- J. All submittals will have a transmittal cover sheet.
- K. What is Contractor's intended start date
- L. Safety Precautions (if any, i.e. hardhats, safety barricades, dust protection, etc.)
- M. Submit Progress Payment invoice monthly by the 25th of the month and number each payment
- N. No blocking the access to fire-related areas or equipment (emergency exits, fire hoses, fire pull boxes, fire extinguishers, etc.)
- O. Asbestos
- P. If a restricted area or adjacent space undergoes construction, review NRC regulations with RSO has been conducted.

ATTACHMENT #4

Efficiency of Well Counter

Veterans Administration Medical Center of Batavia

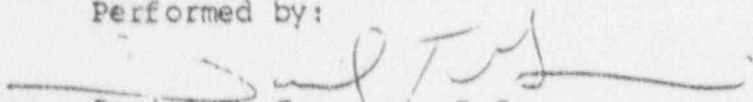
Calculations for Efficiency of a Packard MultiPrias 2
Well Counter
October 11, 1990

The Packard MultiPrias 2 is internally calibrated with a I-129 source. The efficiency was calibrated for a Tc-99m/Co-57 window (80 - 165 Kev) and an open window (15 - 500 Kev) using Co-57. The following data is pertinent with regards to the calculations:

Tc-99m/Co-57 Window -----		Open Window -----	
Activity	- 0.115 uCi	Activity	- 0.115 uCi
Date of Calibration	- 04-08-88	Date of Calibration	- 04-08-88
Half-Life	- 271 days	Half-Life	- 271 days
DPM of Standard on 10-11-90	- 24499	DPM of Standard on 10-11-90	- 24499
Percent of Gamma Emission in window	- 96.2	Percent of Gamma Emission in window	- 96.2
DPM of Gamma Emission	- 23568	DPM of Gamma Emission	- 23568
CPM of Co-57 in 80 - 165 Window	- 22972	CPM of Co-57 in 15 -500 Window	- 23357
Efficiency for Cobalt 57	- 97.5%	Efficiency for Cobalt 57	- 99.1%

Note: The Open window should be used for wipe test measurements with an efficiency of 90%. This window setting will detect most nuclides found in nuclear medicine.
Also, please note since the Prias 2 has two detectors, both detectors were checked for efficiency with the same window and were found to be identical.

Performed by:


Daniel T. Guarasci, B.S.
Consulting Assistant Health Physicist

WELL COUNTER EFFICIENCY

October 11, 1990 0.95 \bar{c} CO-57
 Window 15 - 500 Kev

Conversion of CPM to DPM:

Subtract background from the sample counts and divide
 it by 0.95.

e.g. Sample Cts. 63
 Bkg. Cts. 5
 Net Cts. 58 CPM

$$\frac{58}{0.95} = \text{DPM}$$

Trigger Level >, 11,000 DPM

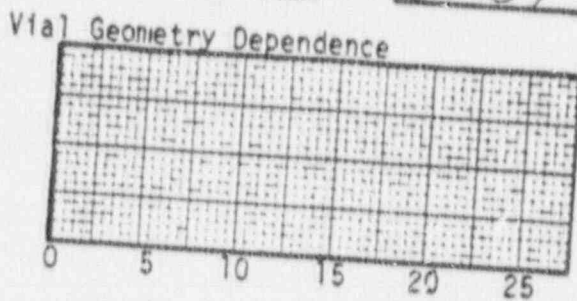
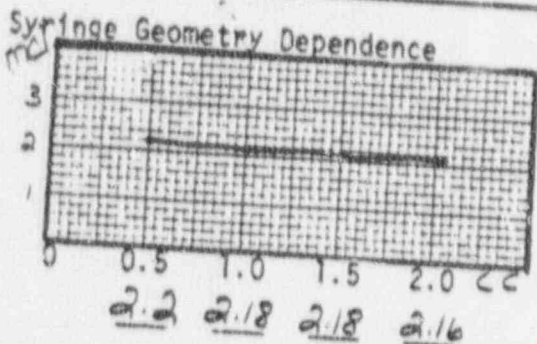
ATTACHMENT #5
Geometry Testing

EXHIBIT 9

Dose Calibrator Geometry and Accuracy

rec'd
11-5-90
from RT. Calib.

Manufacturer: Capintec Model: CRC-30BC SN: 30759



Date: 11/5/90 By: Sharon Biggoy, RT RSO: Thosain 11/5/90

Accuracy Sources		11/5/90	19__
<p><u>250 nCi</u> of <u>Cs 137</u> Model: <u>CDC V1</u> SN: <u>3813 MA</u> Calibration date: <u>12-1-86</u></p>	<p>first assay: <u>235</u> mCi second assay: <u>238</u> mCi third assay: <u>236</u> mCi average: <u>236.3</u> mCi <u>231.5</u> mCi dev: <u>+0.2</u></p>	<p>first assay: _____ mCi second assay: _____ mCi third assay: _____ mCi average: _____ mCi _____ mCi dev: _____</p>	
<p><u>5.31</u> mCi of <u>Co-57</u> Model: _____ SN: <u>58221012-09</u> Calibration date: <u>9-14-90</u></p>	<p>first assay: <u>4.61</u> mCi second assay: <u>4.61</u> mCi third assay: <u>4.60</u> mCi average: <u>4.61</u> mCi <u>4.63</u> mCi dev: <u>-0.04</u></p>	<p>first assay: _____ mCi second assay: _____ mCi third assay: _____ mCi average: _____ mCi _____ mCi dev: _____</p>	
<p>_____ mCi of _____ Model: _____ SN: _____ Calibration date: _____</p>	<p>first assay: _____ mCi second assay: _____ mCi third assay: _____ mCi average: _____ mCi _____ mCi dev: _____</p>	<p>first assay: _____ mCi second assay: _____ mCi third assay: _____ mCi average: _____ mCi _____ mCi dev: _____</p>	

Name: Sharon Biggoy, RT

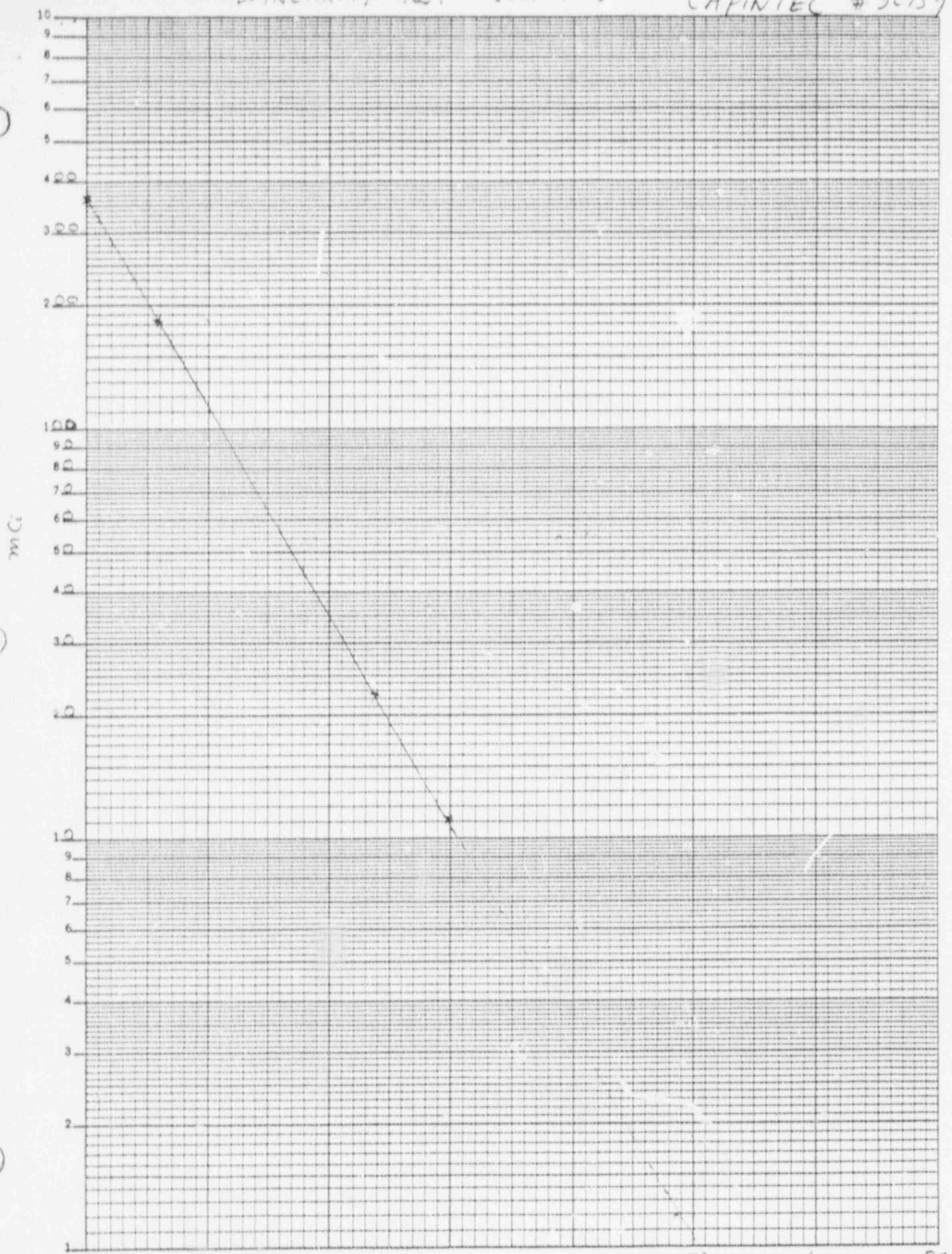
Date: 11-5-90

Thosain

2-12-1951

CMFINTEC # 20137

ATTACHMENT 75



SEMI-LOGARITHMIC 3 CYCLES BY 10 DIVISIONS PER INCH
CONTROL COMPANY

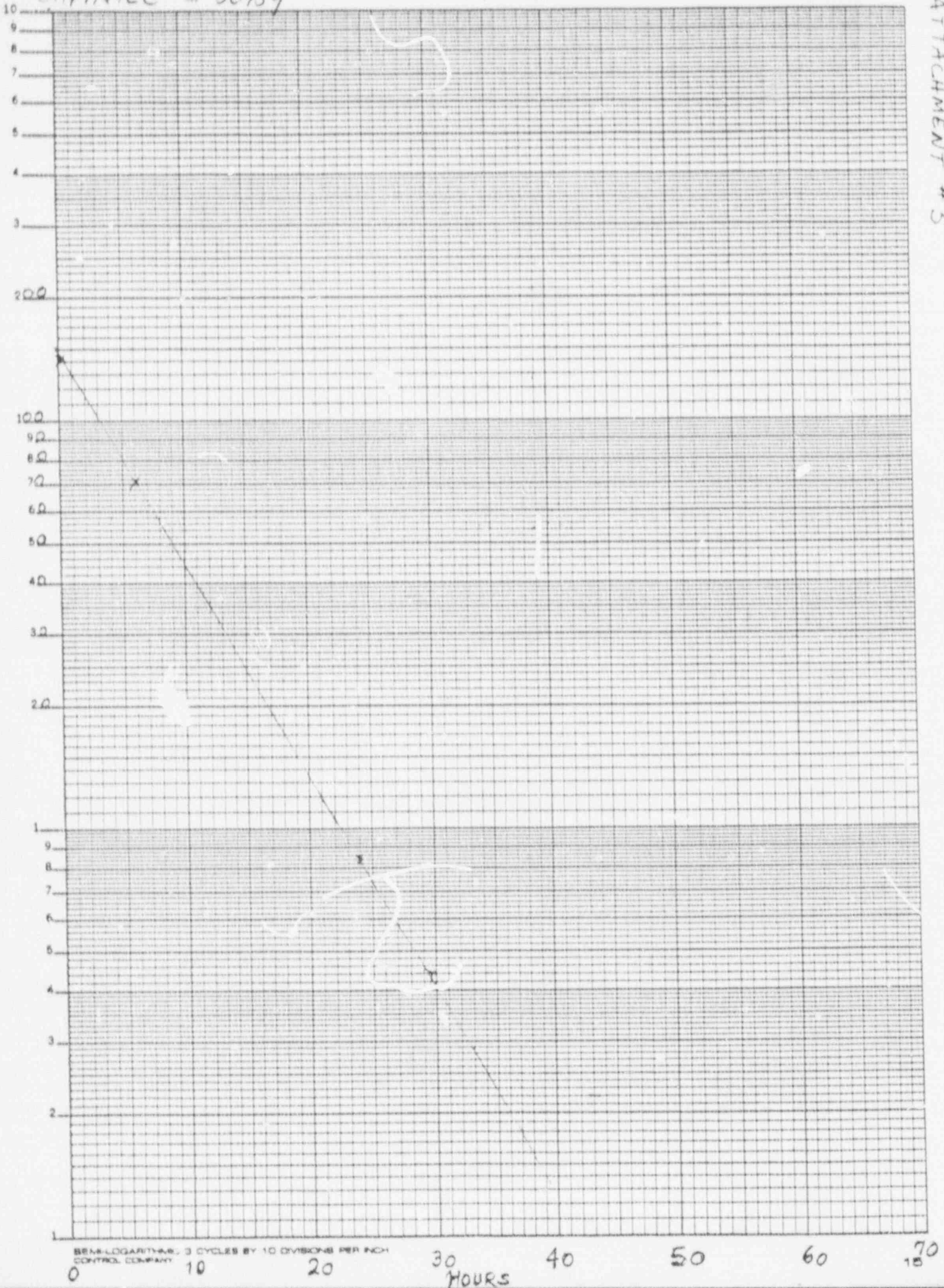
HOURS

CAPINTEC # 50759

LINEARITY TEST

ATTACHMENT # 5

M Ci



SEMI-LOGARITHMIC, 3 CYCLES BY 10 DIVISIONS PER INCH
CONTROL COMPANY

ATTACHMENT #6

Calculation of Seal Source Activity

DATE	TEST	TC-99 ASSAY	PO ASSAY	111 In	99m TC	57 Co	ACTUAL Co-137	PRED. Co-137	ACTUAL Ra-226	PRED. Ra-226	ACTUAL Co-60	PRED. Co-60	PFUB. Co-60	PO ASSAY	111 In	99m TC	57 Co	ACTUAL Co-137	PRED. Co-137	ACTUAL Ra-226	PRED. Ra-226	PFUB. Co-60	PO ASSAY	111 In	99m TC	57 Co	ACTUAL Co-137	PRED. Co-137	ACTUAL Ra-226	PRED. Ra-226	PFUB. Co-60				
1-28	1-1-1	575	575	18400	4350	3840	2330	2180	2170	500	3700	500	575	2000	3000	4350	3840	2330	2180	500	3700	500	2000	3000	4350	3840	2330	2180	500	3700	500				
1-29		374		303	080	100	228	231	540	210			374																						
1-30																																			
1-31																																			
2-1										209																									
2-4										5100																									
2-5																																			
2-6																																			
2-7																																			
2-8																																			
DATA SHEET																																			
BICAL	246 412 451 194 208 321 277 200																																		
CON	224 374 419 176 190 291 277 238																																		

BA-133 11/82 129.6 Mo.
 CS-137 12/82 360 Mo.
 Co-5 9/90 271.7

DOSE CALIBRATOR CONSTANCY CHECK

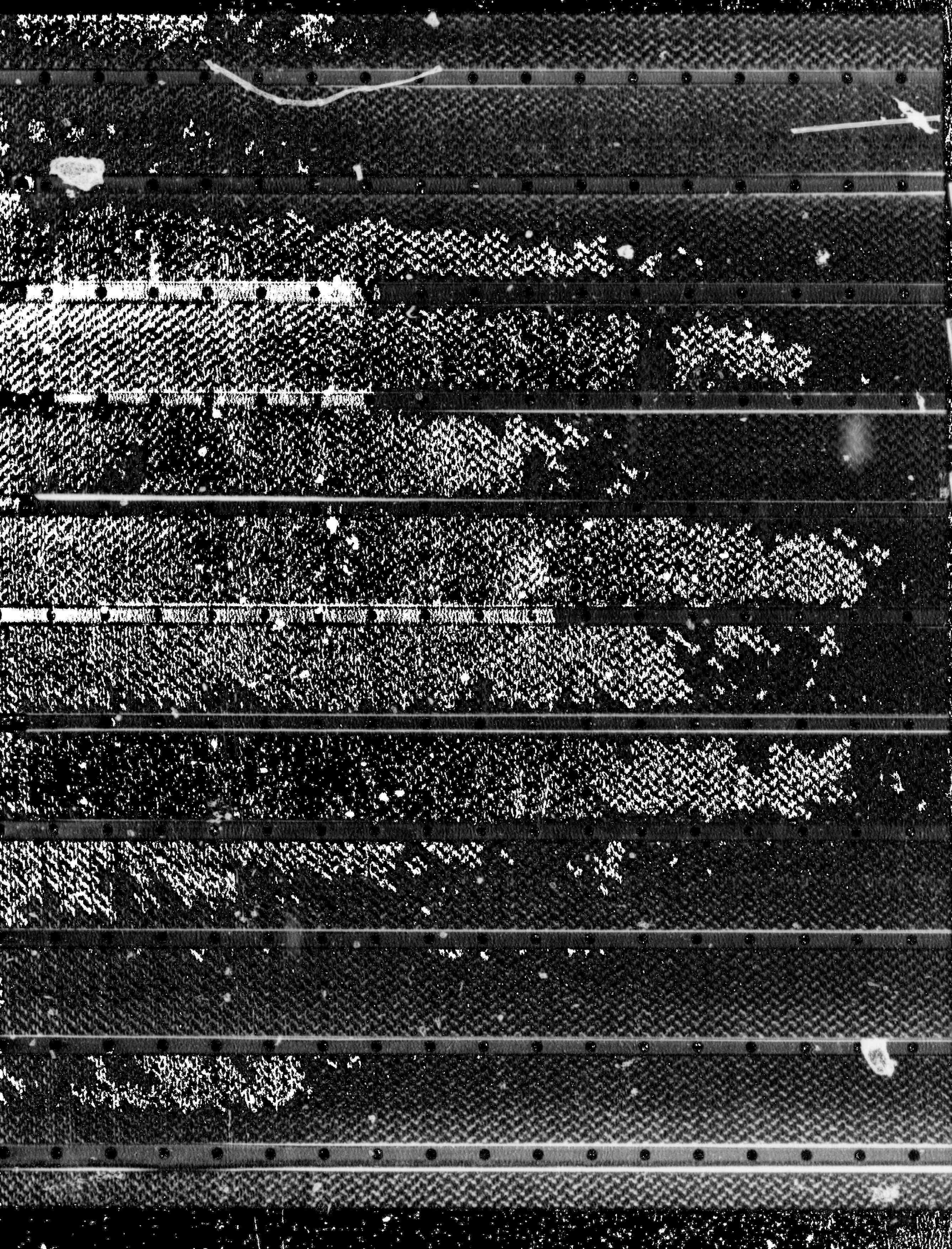
Mfg: Capintec Model: CRc-30 Serial No: 30757
 Source: Calibration Date: 10-26-90 Activity:
 Month: SAR-Feb Year: 1991

DOCUMENT 11-19
Co57

SEPTEMBER 1990

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1 A 5.489mCi
2 A 5.475mCi	3 A 5.461mCi	4 A 5.447mCi	5 A 5.433mCi	6 A 5.419mCi	7 A 5.406mCi	8 A 5.392mCi
9 A 5.378mCi	10 A 5.364mCi	11 A 5.351mCi	12 A 5.337mCi	13 A 5.324mCi	14 A 5.310mCi	15 A 5.296mCi
16 A 5.283mCi	17 A 5.270mCi	18 A 5.256mCi	19 A 5.243mCi	20 A 5.229mCi	21 A 5.216mCi	22 A 5.203mCi
23 A 5.189mCi	24 A 5.176mCi	25 A 5.163mCi	26 A 5.150mCi	27 A 5.137mCi	28 A 5.124mCi	29 A 5.111mCi
30 5.098mCi						

A Isotope Serial No. Initial Activity As of
 Co_57 S8221012-09 5.310 mCi 9/14/1990



ATTACHMENT #7

New Forms

RADIOACTIVE WASTE DISPOSAL

Form
VARS - 13

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

Material Storage	
Container/Material:	_____
Storage Date:	_____ by: _____
Estimated Activity :	_____ $\frac{\mu\text{Ci}}{\text{mCi}}$
Material Disposal	
Disposal Date:	_____ by: _____
Surface Survey:	_____ $\frac{\text{mR/hr}}$
Background:	_____ $\frac{\text{mR/hr}}$
Instrument:	_____
Final Disposition:	_____

AREA CONTAMINATION WIPES

Form
VAR-8

Month:		Year:			Use keyed drawing from VAR-7			
Date:		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
	Bkg CPM							
	Wipe CPM							
	Std CPM							
	Std Act uCi							
	Wipe uCi							

Date:		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
	Bkg CPM							
	Wipe CPM							
	Std CPM							
	Std Act uCi							
	Wipe uCi							

Date:		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
	Bkg CPM							
	Wipe CPM							
	Std CPM							
	Std Act uCi							
	Wipe uCi							

Date:		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
	Bkg CPM							
	Wipe CPM							
	Std CPM							
	Std Act uCi							
	Wipe uCi							

Date:		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
	Bkg CPM							
	Wipe CPM							
	Std CPM							
	Std Act uCi							
	Wipe uCi							

Action Level: > 0.01 uCi / 100 sq. cm., clean up removable activity and notify RSO

DOSE CALIBRATOR LINEARITY

Form
VAR5-3

Mfg:

Model:

Serial No:

Start Date:		Performed by:		
Time:		Reviewed by: RSO		
Lapsed Time (hrs)	Measured Activity	Correction Factor	Corrected Activity	% Diff (M-C)/C
0		32		
6		16		
24		2		
30		1		0
48		0.125		
54		0.0625		
72		0.0078		
78		0.0039		
96		0.0005		

Start Date:		Performed by:		
Time:		Reviewed by: RSO		
Lapsed Time (hrs)	Measured Activity	Correction Factor	Corrected Activity	% Diff (M-C)/C
0		32		
6		16		
24		2		
30		1		0
48		0.125		
54		0.0625		
72		0.0078		
78		0.0039		
96		0.0005		

Start Date:		Performed by:		
Time:		Reviewed by: RSO		
Lapsed Time (hrs)	Measured Activity	Correction Factor	Corrected Activity	% Diff (M-C)/C
0		32		
6		16		
24		2		
30		1		0
48		0.125		
54		0.0625		
72		0.0078		
78		0.0039		
96		0.0005		

Start Date:		Performed by:		
Time:		Reviewed by: RSO		
Lapsed Time (hrs)	Measured Activity	Correction Factor	Corrected Activity	% Diff (M-C)/C
0		32		
6		16		
24		2		
30		1		0
48		0.125		
54		0.0625		
72		0.0078		
78		0.0039		
96		0.0005		

Action Levels: % Difference > 10% correct measured doses

SEALED SOURCE WIPE TESTS

(6 month intervals)

Form
VARS-10

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

	Date:	Test by:	
	Isotope:		
	Source ID:		
A.	Bkg. CPM:		
B.	Wipe CPM:		
C.	Std. CPM:		
D.	Std. Act. (uCi):		
E.	Wipe Act. (uCi):		
	$[(B - A) / (C - A)] \times D$		RSO

Action Level: Wipe Act. > 0.025 uCi Notify the RSO

Oct. 1990

SEALED SOURCE WIPE TESTS ---- (6 month intervals)

Form
VAF-5-10

4

Date:	10-2-90	Test by:	MJ
Isotope:	CS-137		
Source ID:	381B		
A. Bkg. CPM:			4
B. Wipe CPM:			35
C. Std. CPM:			
D. Std. Act. (uCi):			
E. Wipe Act. (uCi):	DPM		26
[(B-A)/(C-A)] x D			RSO

5

Date:	10-2-90	Test by:	MJ
Isotope:	75F-133		
Source ID:	2511		
A. Bkg. CPM:			8
B. Wipe CPM:			8
C. Std. CPM:			
D. Std. Act. (uCi):			
E. Wipe Act. (uCi):	DPM		8.4
[(B-A)/(C-A)] x D			RSO

3

Date:	10-7-90	Test by:	MJ
Isotope:	Co-57-32C		
Source ID:	58021017-09		
A. Bkg. CPM:			8
B. Wipe CPM:			17
C. Std. CPM:			
D. Std. Act. (uCi):			
E. Wipe Act. (uCi):	DPM		18
[(B-A)/(C-A)] x D			RSO

5

Date:	10-7-90	Test by:	MJ
Isotope:	Co-57 10Kc		
Source ID:	58012105x3		
A. Bkg. CPM:			8
B. Wipe CPM:			10
C. Std. CPM:			
D. Std. Act. (uCi):			
E. Wipe Act. (uCi):	DPM		11
[(B-A)/(C-A)] x D			RSO

6

Date:	10-7-90	Test by:	MJ
Isotope:	CS-137		
Source ID:	18A2226		
A. Bkg. CPM:			27
B. Wipe CPM:			7
C. Std. CPM:			
D. Std. Act. (uCi):	DPM		7.3
E. Wipe Act. (uCi):			
[(B-A)/(C-A)] x D			RSO

8

Date:	10-2-90	Test by:	MJ
Isotope:	Co-57 32C		
Source ID:	290098117		
A. Bkg. CPM:			27
B. Wipe CPM:			13
C. Std. CPM:			
D. Std. Act. (uCi):			
E. Wipe Act. (uCi):	DPM		14
[(B-A)/(C-A)] x D			RSO

Action Level: Wipe Act. > 0.005 uCi Notify the RSO

TRIGGER LEVEL FOR Tc-99m 2000 dpm.

SOURCE INVENTORY

Form
VAR5-11

(Quarterly)

Inventory Date:		Inventory by:		Description / Use	Location
No.	Source ID No	Manufacturer			
1	319-119-05	NEN		CO-60 - 11/23/77	
2	319-119-05	NEN		Co-57 - 11/23/77	
3	2060379A 12	NEN		CO-57 - 3/6/79	
4	2060280A 05	NEN		CO-57 - 2/22/80	
5	2060482B	NEN		CO57 - 4/82	
6	2060481B	NEN		CO57 - 4/81	
7	2060983A-16	NEN		CO57 - 9/83	
8	6643	Amersham		CO57 - 7/1/85	
9	9031 MA	Amersham		CO57 - 11/2/88	
10	319-119-05	NEN		Cs137 - 11/77	
11	7025 MA	Amersham		CO57-3/1/87	
12				Dosimeter Source 90 uCi	

Inventory Date:		Inventory by:		Description / Use	Location
No.	Source ID No	Manufacturer			
1					
2	58 221012-(19)	Capintec		CO57 - 9/21/90	
3	3813 MA	Amersham		CS137 - 12/1/86	
4	2511 MA	Amersham		BA133 - 11/1/86	
5	#231			CO57 Ruler - 6/20/83	
6	#289 -3389	Nuclear Assoc.		CO57 Spot Marker - 6/20/83	
7	7240	Amersham		CO57 Penpoint	
8				CS137 Spot Marker 7/24/85	
9	5801	DuPont		CO57 Flood Source (10mCi) 3/15/89	
10		NEN		Cs137 Irradiator	
11	#296	NEN		CO57 Flood Source 9/15/81	
12					

Action Level: Report all lost or missing sources to RSO

SAMPLE

SOURCE INVENTORY Oct-1-1990

Form
VARS-11

(Quarterly)

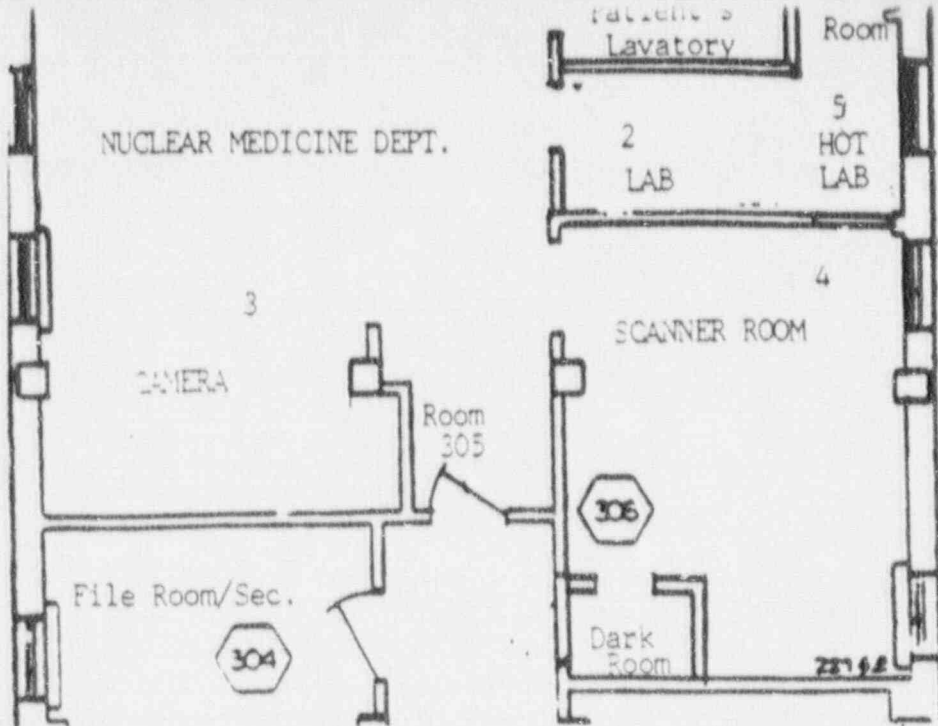
Inventory Date:		Inventory by:		
No.	Source ID No	Manufacturer	Description / Use	Location
1	319-119-05	New England	CO-60 - 11/23/77 ✓	
2	319-119-05	"	Co-57 - 11/23/77 ✓	
3	2060379A-12	New England	CO-57 - 3/6/79 ✓	
4	2060280A 05	New England	CO-57 - 2/22/80 ✓	
5	2060482B	New England	CO57 - 4/82 ✓	Lab Chest
6	2060481B	"	CO57 - 4/81 ✓	
7	2060983A-16	"	CO57 - 9/83 ✓	
8	6643	Amersham	CO57 - 7/1/85 ✓	
9	9031 MA	Amersham	CO57 - 11/2/88 ✓	
10	319-119-05	New England	Cs137 - 11/77 ✓	
11	7025 MA	Amersham	CO57-3/1/87 ✓	
12			Dosimeter Source 90 uCi	

Inventory Date:		Inventory by:		
No.	Source ID No	Manufacturer	Description / Use	Location
1				
2	58 221012-09	Capintec	CO57 - 9/21/90	Hot Lab
3	3813 MA	Amersham	CS137 - 12/1/86	Hot Lab
4	2511 MA	Amersham	BA133 - 11/1/86	Hot Lab
5	#231		CO57 Ruler - 6/20/83	Camera
6	#289 - 3389	Nuclear Assoc.	CO57 Spot Marker - 6/20/83	Camera
7	7240	Amersham	CO57 Penpoint	Hot Lab
8			CS137 Spot Marker	7/24/85 Hot Lab
9	5801	Elie Point	CO57 Flood Source (10mCi)	3/15/89, Hot Lab
10		New England Nuclear	Cs137 Irradiator	Chest
11	#296	New England Nuclear	CO57 Flood Source ^{3mCi}	9/15/81 Chest
12				

Action Level: Report all lost or missing sources to RSO

Hudson
10/2/90

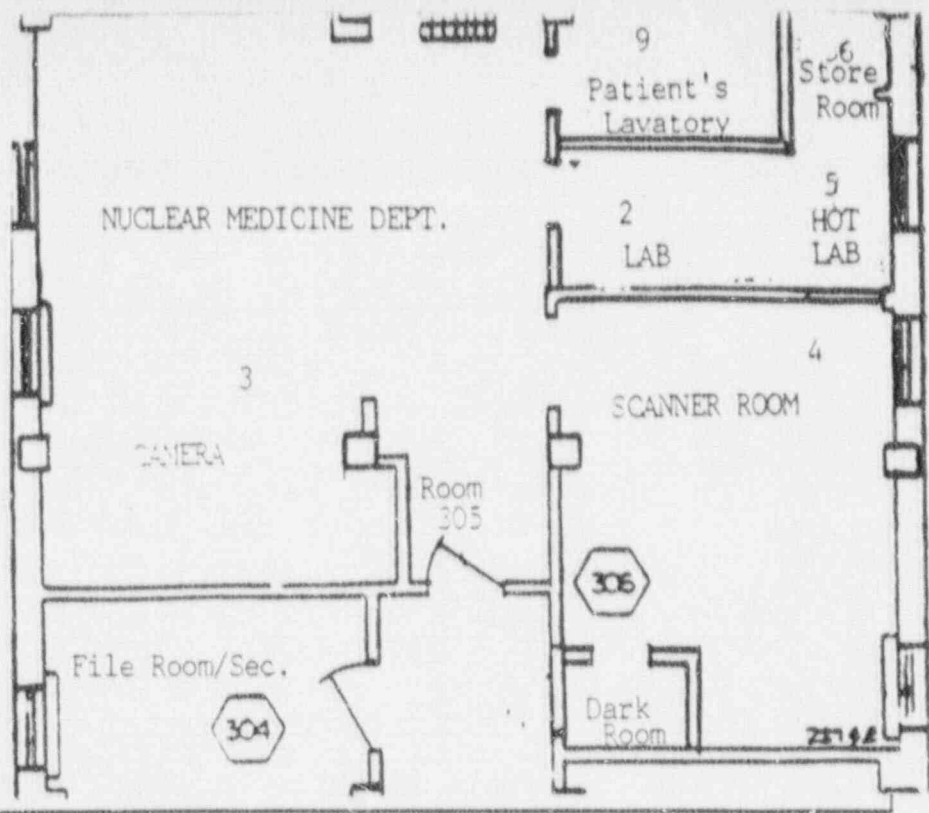
- 3. CAMERA ROOM
- 4. SCANNER ROOM
- 5. GENERATOR ROOM
- 6. STORE ROOM
- 8. EKG DEPARTMENT
- 9. Pt. lavatory



Month: <i>December</i>		Year: <i>1990</i>		Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	Area 9	
1											
2											
3	<i>2.4</i>	<i>0.04</i>	<i>.2</i>	<i>0.04</i>	<i>0.04</i>	<i>0.6</i>	<i>0.8</i>			<i>.2</i>	<i>m2</i>
4	<i>-</i>										
5	<i>2.4</i>	<i>0.04</i>	<i>.2</i>	<i>0.04</i>	<i>0.04</i>	<i>0.4</i>	<i>0.4</i>			<i>.2</i>	<i>m2</i>
6	<i>2.4</i>	<i>0.04</i>	<i>.2</i>	<i>0.04</i>	<i>0.04</i>	<i>0.4</i>	<i>0.2</i>			<i>.2</i>	<i>m2</i>
7	<i>2.4</i>	<i>0.04</i>	<i>.2</i>	<i>0.04</i>	<i>0.04</i>	<i>0.4</i>	<i>0.2</i>			<i>.2</i>	<i>m2</i>
8											
9											
10	<i>2.4</i>	<i>0.04</i>	<i>0.6</i>	<i>0.04</i>	<i>0.04</i>	<i>0.6</i>	<i>0.6</i>	<i>0.02</i>		<i>0.2</i>	<i>m2</i>
11	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.4</i>	<i>0.6</i>			<i>0.2</i>	<i>m2</i>
12	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.4</i>	<i>0.4</i>			<i>0.2</i>	<i>m2</i>
13	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.4</i>	<i>0.4</i>			<i>0.2</i>	<i>m2</i>
14	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.2</i>	<i>0.2</i>			<i>0.2</i>	<i>m2</i>
15											
16											
17											
18	<i>2.4</i>	<i>0.02</i>	<i>0.08</i>	<i>0.04</i>	<i>0.04</i>	<i>0.4</i>	<i>0.8</i>			<i>0.08</i>	<i>m2</i>
19											
20	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.02</i>	<i>0.02</i>	<i>0.2</i>	<i>0.8</i>			<i>0.2</i>	<i>m2</i>
21	<i>NO IMAGING</i>										
22											
23											
24	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.02</i>	<i>0.02</i>	<i>0.2</i>	<i>0.4</i>	<i>0.02</i>		<i>0.2</i>	<i>SB</i>
25	<i>HOLIDAY</i>										
26	<i>2.4</i>	<i>0.02</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.2</i>	<i>0.4</i>	<i>0.02</i>		<i>0.2</i>	<i>SB</i>
27	<i>2.4</i>	<i>0.02</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.4</i>	<i>0.4</i>	<i>0.04</i>		<i>0.4</i>	<i>SB</i>
28	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.04</i>	<i>0.02</i>	<i>0.2</i>	<i>0.4</i>	<i>0.04</i>		<i>0.4</i>	<i>SB</i>
29											
30											
31	<i>2.4</i>	<i>0.04</i>	<i>0.2</i>	<i>0.02</i>	<i>0.02</i>	<i>0.2</i>	<i>0.4</i>	<i>0.02</i>		<i>0.2</i>	<i>SB</i>

Action Levels: > 0.5 mR/hr. add shielding or other appropriate action. If > 1.0 mR/hr notify RSO

- 2. LAB
- 3. CAMERA ROOM
- 4. SCANNER ROOM
- 5. GENERATOR ROOM
- 6. STORE ROOM
- 8. EKG DEPARTMENT
- 9. Pt. lavatory



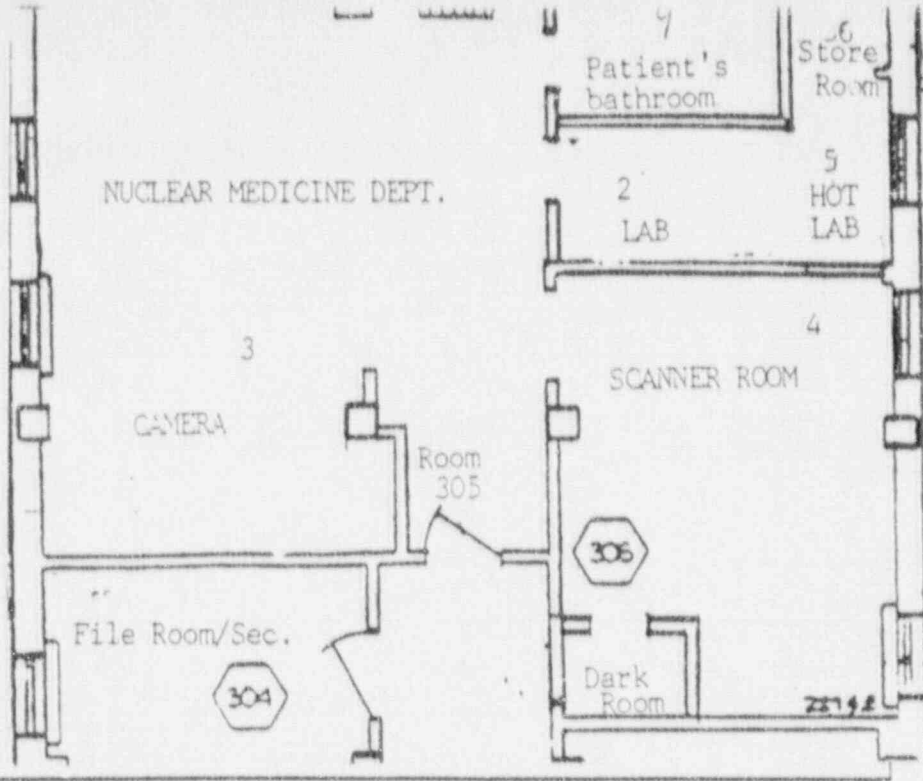
ATTACH #7

Month:			Year:						
Day of MO	Meter Check	Bkg Rate	Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	9
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									

Action Levels: > 0.5 mR/hr., add shielding or other appropriate action, if > 1.0 mR/hr notify RSO

- 2. LAB
- 3. CAMERA ROOM
- 4. SCANNER ROOM
- 5. GENERATOR ROOM
- 6. STORE ROOM
- 8. EKG DEPARTMENT
- 9. BATH ROOM

Oct
1990



Month: OCT - 1990 Year: 1990

Day of MO	Meter Check	Bkg Rate	Area 2	Area 3	Area 4	Area 5	Area 6	Area 8	Survey by:
1	2.4		0.02	0.04		0.02			mg
2	2.4		0.07	0.04		0.01			mg
3	2.4		0.02	0.02		0.02			mg
4	2.4		0.04	0.04		0.01	0.01		mg
5	2.4		0.04	0.04	0.02	0.6	0.12	0.02	mg
6									
7									
8									
9	2.4		0.03	0.02		0.03			mg
10	2.4		0.4	0.2	0.04	0.04	0.6	0.04	mg
11	2.4		0.06	0.04		0.02			mg
12	2.4		0.2	0.02		0.02			mg
13									
14									
15	2.4		0.04	0.04	0.02	0.2	0.3		mg
16	2.4		0.2	0.4		0.04			mg
17	2.4		0.2	0.2	0.02	0.2	0.04	0.04	mg
18	2.4		0.04	0.02		0.02			mg
19	2.4		0.02	0.04		0.04			mg
20									
21									
22	2.4		0.2	0.04		0.01			mg
23	2.4		0.08	0.02		0.08			mg
24									(3.2)
25	2.4	0.2	0.4	0.04	0.04	0.4	0.8	0.04	0.08 mg
26	2.4	0.4	0.6	0.02	0.02	0.08	0.7		0.04 mg
27									
28									
29	2.4	0.4	0.8	0.04	0.04	0.4	0.8		0.05 mg
30	2.4	0.2	0.4	0.02		0.02			
31	2.4	0.04	0.04	0.02		0.02			

Action Levels: > 0.5 mR/hr., add shielding or other appropriate action, if > 1.0 mR/hr notify PSO

#9 is at low

mg
mg
mg