

HAHNEMANN UNIVERSITY
Broad & Vine Philadelphia, PA 19102

Office of the Vice President
for Health Affairs
Mail Stop 315
215-448-8450

6 September 1984

Thomas T. Martin
Director, Division of Engineering
and Technical Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Martin:

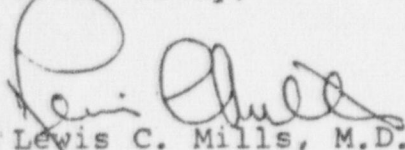
RE: License No. 37-00467-34, Docket No. 30-02959

Enclosed is the reply to the various items that you requested in your letter dated 13 July 1984. Please be assured that Management has reviewed and supported the steps taken.

Since Hahnemann University is requesting an amendment to reflect the change in the chairmanship of the Ionizing Radiation Control Committee and a change in tritium bioassay requirements, please find also enclosed a check for \$120.00 for these changes.

If additional information is needed, please do not hesitate to contact my office.

Yours truly,



Lewis C. Mills, M.D.

V. P. for Health Affairs

LCM/cm
Enclosure

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Item 1. Training

Confirmation is given that the items discussed in the inservice training sessions given by the Radiation Safety Office to Housekeeping personnel included items 12.a through 12.j of NRC Regulatory Guide 10.8 (Revision 1, October 1980).

Also please find enclosed a copy of the handout that was distributed to each person who attended a training session. Future handouts, if used, may differ.

The oral presentations included remarks and/or demonstrations of ways of minimizing exposure and the necessity of using gloves and how to remove them without risk of contamination.

Two other items were stressed: the ALARA principle and the importance of reporting unsafe working conditions.

All sessions ended with a question and answer period so that specific concerns could be addressed.

Item 2. IRCC Chairman

We are requesting an amendment to our license for Luther W. Brady, M.D. to be the Chairman of the Ionizing Radiation Control Committee. His qualifications are on record with the NRC - Renewal Application for NRC License 37-00467-34, Items 7 and 8, p. 10, 19 March 1979.

Future changes in the Chairmanship of the IRCC will be reported to the NRC for confirmation.

Item 3. Worker Assigned to 8th Floor NCB

A letter dated 24 April 1984 was sent to the individual you described in Item 3 of your letter of 13 July 1984. In the letter it was stated that, "The estimation is that you received an exposure in the range of 0 to 10 mrem for each month on the eighth floor."

This evaluation was arrived at by the following steps:

1. A talk with the supervisors of Housekeeping as to how many months the individual worked on the eighth floor elicited the answer of three to four months. The answer to the question of how many hours per week the individual was judged to be in laboratories where radioactive material is used was approximately 1.5 hours. (Most of the time of Housekeeping personnel is spent in servicing offices, corridors and rest rooms.)
2. Both the survey reports from the licensed users on the eighth floor and those of the Radiation Safety Office for 1982 were reviewed. Agreement was good between the two sets of measurements. Exposure levels were generally less than 0.1 mR/hour and usually approached a net reading of zero. To be conservative a value of 0.1 mR/hour was chosen. Multiplying the number of hours by the exposure rate gave a value of 0.15 mR/week or less than 1 mR per month.
3. Film badge readings of workers of the eighth floor in 1982 were compared with readings in 1983 and 1984 in an effort to see if there had been any major changes. Since the readings for both time periods were the same and the 1983 and 1984 survey results were similar to those in 1982, there seemed to have been no major changes in exposure levels.
4. The film badge readings for those now badged members of the Housekeeping staff were found to be minimal; i.e., 10 mrem or less - similar to the large majority of the radiation workers on the eighth floor.
5. Since conditions appeared not to have changed from 1982, it was felt prudent to take an upper limit of 10 mrem per month as the estimation of exposure to the individual. This was felt to be conservative instead of reporting a lower value such as 1 mrem per month.

Item 4. Tritium Bioassays

Formal notification concerning tritium bioassays requirements has gone to researchers and their staff on several occasions. The latest dates have been 6 September 1983, 21 September 1983 and 26 June 1984. In addition, the radiation safety handbook which all researchers have received contains the requirements for tritium bioassays. As stated in our previous letter, reports of the tritium bioassays have become a regular item for the IRCC meetings.

The requirements being followed are those described in NRC, Division of Fuel Cycle and Material Safety, "Guidelines for Bioassay Requirements for Tritium," October 19, 1977, AB/REA. (This was listed in our letter of 22 February 1982 to NRC, Region I.)

Confirmation is given that researchers and technicians using quantities in excess of one millicurie of tritium in the form of a nucleotide precursor in an open room have bioassays and are aware of the requirements.

At this time we ask for an amendment to our license, NRC 37-00467-34, to change the tritium bioassay requirements. We wish to follow the guidelines set forth in the NRC Draft Regulatory Guide and Value/Impact Statement, June 1983, Division 8, Task OP 713-4 (for comment). We wish in addition the amendment to be such that when the Guide appears in its final form we will automatically be allowed to follow it.

To tighten further the controls, the Radiation Safety Office will present to the IRCC at its meetings a list of licensees who since the previous meeting have received 1 millicurie or more of tritium in the form of a nucleotide precursor and whether the processing required bioassays. If our amendment request is approved, then the list will include only those receiving 10 millicuries or more of tritium. The first list will be prepared for the October 1984 IRCC meeting.

Item 5. Question of Posting

No response is required.

Item 6. Management Control

As seen in other portions of this reply and previous ones, management has taken steps that it will be kept current of the status of the radiation safety program so as to avoid the deficiencies observed during the September 1983 inspection. These steps include quarterly reports on the status of the bioassays and calibration of instruments given at the quarterly IRCC meetings.

In addition, during its annual inspection of the radiation safety program, management will now place a high priority on the review of the required bioassays portion.

Management also confirms that if the Ionizing Radiation Control Committee is unable to obtain the necessary and timely responses from the users of radioactive material in regard to NRC regulations and the ALARA program, management will assume the responsibility to do so. The IRCC has been informed of this commitment. The Radiation Safety Office has also been instructed to bring to Administration any problems that require immediate action so that corrections may be carried out sooner than in the past.

We believe that these commitments represent a conscious attempt to adhere to and to understand the conditions of our license and NRC regulations.

RADIATION SAFETY OFFICE HANDOUT
HOUSEKEEPING STAFF

1. What is radiation?

Radiation may be defined as energy going through space or some material in the form of waves, such as radio waves. Usually when people speak of radiation, what is meant is IONIZING RADIATION. Ionizing radiation will change a neutral atom or molecule into one with a negative or positive charge. Ionizing radiation can be caused by an atom giving off a sub-atomic particle. Atoms that do this are called RADIOACTIVE.

Some examples of radiation are: (a) heat - as from a radiator, (b) sunlight, (c) radio and television waves, (d) sound waves, (e) microwaves - as found in microwave ovens or in some transmission towers, (f) X-rays and gamma rays - a form of ionizing radiation and (g) alpha and beta particles - another form of ionizing radiation.

2. Can radiation be avoided?

NO! The reason is that radiation occurs naturally besides being man-made. There has always been radiation in the earth and from the sun. Radiation can exist naturally in rocks, food, building materials and cosmic rays from outer space. You can be exposed to radiation in order to receive medical benefit, such as having a x-ray taken of a suspected broken arm.

3. What are some examples of radiation levels?

Living in Denver	114-188 mrem/year
Living in New York City	87 mrem/year
Dental x-ray (whole mouth)	900 mrem
Chest x-ray	22 mrem/film
Smoking tobacco	8000 mrem/year
Yearly limit for radiation workers	5000 mrem
Yearly limit for General Population	500 mrem

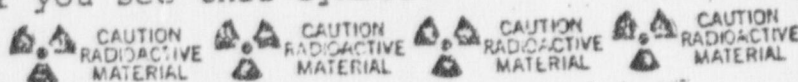
The yearly limits do not include radiation from naturally occurring sources and from medical tests. "mrem" is without being too technical a unit of dose or the amount of radiation received.

4. Where can radiation be found at Hahnemann?

There are areas within Hahnemann that use radiation for medical treatment and research. Diagnostic Radiology uses x-rays to take their pictures or films. Radiation Therapy uses linear accelerators to produce x-rays for the treatment of cancer. In both cases when the machine is off, there is no radiation. Nuclear medicine uses radioactive material to take their pictures or scans and researchers use radioactive material for medical research and tests.

5. How can I identify these places?

Whenever you see this symbol



it means that there is radiation or radioactive material around. Note that the symbol may come in different sizes and with different wording in some cases. The important thing is to recognize the symbol - a three blade propeller. Usually the background is yellow and the propeller is red. Examples where the radiation symbol may be found are: (a) on machines that produce x-rays, (b) doors to laboratories where radioactive material is used or stored, (c) sinks where radioactive material may be disposed of, but only if the NRC approves of such disposal, (d) containers or bottles - do not handle such containers, (e) waste cans containing radioactive waste - do not handle such containers, (f) fume hoods - do not clean this type of hood, and (g) work areas where radioactive material is used - do not clean these areas or change the absorbent paper.

6. Are there risks in working around radiation?

People are concerned about the risks of radiation and indeed radiation can be potentially hazardous. One reason for this handout is so that you will know more about radiation and what to do in radiation areas. To see just how "safe or unsafe" radiation is, look at the following assessments of risk.

<u>Cause</u>	<u>Loss of Life Expectancy (days)</u>
Being unmarried - male	3500
Cigarette smoking	2250
Heart disease	2100
Being 20% overweight	900
Dangerous job - accident	300
Motor vehicle accident	207
Alcohol (U.S. average)	130
Average job - accident	74
Job with radiation exposure	40
Safest job - accident	30
Natural radiation	8
Coffee	6
Diet drinks	2

<u>Action</u>	<u>Minutes of Life Expectancy Loss</u>
Smoking a cigarette	10
Calorie-rich dessert	50
Crossing a street	0.4
1 mrem of radiation	1.5
Coast to coast flight	100
Buying a small car	7000

These numbers are only a guide and for example do not mean that every time you cross a street you will lose 0.4 minutes off your life expectancy. Your chance of drawing the king of diamonds from a full deck is 1 out of 52. This does not mean that if you draw from a full deck 52 times, you will only get the king of diamonds once. You may get it several times or not at all, but on the average only one time out of 52.

7. RULES FOR CLEANING AREAS WHERE RADIOACTIVE MATERIAL IS USED

- a) Rooms marked with the radiation symbol are to be cleaned only with the permission of an authorized radiation worker. It is the responsibility of the worker to show you what areas may be cleaned. If you are unsure, ask the worker again. If you are still uncertain, ask your supervisor. If there is still doubt about the task, contact the Radiation Safety Office.
- b) You are not to clean radioactive spills. Always ask if a spill is radioactive.
- c) You are not to clean any radioactive sinks or equipment used with radioactive material. Sinks should be marked with radiation symbol.
- d) You are not to change any absorbent paper or pads where these have been used with radioactive material.
- e) You are not to touch, clean or move any radiation waste barrel.
- f) You are not to move or handle any container which has the radiation symbol.
- g) You are to remove only trash that contains no radioactivity. If unsure, ask worker to monitor trash and to show you the monitoring.

8. If I have questions or concerns, whom do I see?

If there are things that disturb you or things that you have questions about, you may want to first talk to your supervisor. If you are still not satisfied, come talk to the Radiation Safety Office, Room 239 Bobst, x7663. If you are still dissatisfied, you have the right to contact the U.S. Nuclear Regulatory Commission whose telephone number can be found on the maps of the U.S. in the radioactive material laboratories or on the door to the Radiation Safety Office. If you wish, you may contact the Nuclear Regulatory Commission first, but usually things can be settled at Hahnemann without going to them. You cannot lose your job because you talk to the Radiation Safety Office or to the Commission.



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
831 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

16 JUL 1984

Docket No. 30-02959
70-01362

License No. 37-00467-34
SNM-1369 ✓

Hahnemann Medical College and Hospital
ATTN: Lewis C. Mills, M.D.
Vice President for Health Affairs
230 N. Broad Street
Philadelphia, Pennsylvania 19102

Gentlemen:

Subject: Combined Inspection No. 30-02959/83-01 and 70-01362/83-01

This refers to your letter dated February 7, 1984, in response to our letter dated December 23, 1983. As a result of our review of your response, we have determined that it does not contain all of the information requested in our February 7th letter and enclosed Notice of Violation. Our specific comments below refer to the items identified in the Notice of Violation.

1. With regard to Item B, your letter did not describe the subjects discussed in the in-service training for members of the Housekeeping Staff. Please provide us with a description of this training in your response to this letter.
2. With regard to Item C, Condition 12 of License No. 37-00467-37 identifies the individual who performs the duties as Chairman of the Radiation Control Committee. It is necessary for you to submit to the NRC an application to amend your license in order to name another individual to chair the Committee. Since one important function of the Committee is to advise and evaluate the work of the Radiation Safety Officer, we are unlikely to approve the same person as Radiation Control Officer and Chairman of the Committee.
3. In your response to Item D.1, you described the process you used to evaluate the radiological hazards to the present janitorial staff, who are more closely supervised than the previous staff and who use protective clothing on a routine basis. However, you failed to provide an evaluation of the dose received by members of the janitorial staff previously assigned duties on the eighth floor of the Medical College, considering conditions in effect prior to September 2, 1983. Since those persons entered restricted areas to perform their duties, it is required that an explicit evaluation of their exposure be prepared. Since they did not wear dosimetry, nor were specific surveys made to evaluate their exposure, you may need to use available survey data and other information to prepare this estimate and it may have greater than usual uncertainties. However, the evaluation is required and, in accordance with 10 CFR 19.13, must be provided to the individuals who request it. We are aware that one individual who was formerly assigned to the eighth floor janitorial staff has specifically requested a report of his radiation exposure and that you indicated to him that no records of his exposure existed. However, the citation was issued because an evaluation of the exposure was required. Once the evaluation is prepared, it or a summary must be provided to the individual. Please

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in accordance with the Freedom of Information
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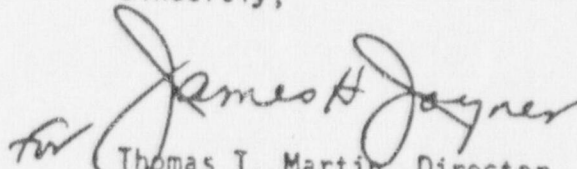
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- perform the evaluation, provide us with a description of the evaluation and provide us with the date on which it was provided to this individual.
4. In your response to item E.1, you failed to describe corrective actions that will be or have been implemented to ensure that the circumstances described in the citation will not recur in the future. In addition, please confirm that you now perform quarterly bioassays for all research investigators and technicians using quantities in excess of one millicurie of tritium in an open room and that investigators and technicians are aware of requirements for quarterly tritium bioassays.
 5. In response to the question raised in Item 6 of your letter concerning the proper posting of the rooms in Sketch II, it would be appropriate to post the door to Room B since access to Room B can be controlled and since radioactive material in an amount as described in 10 CFR 20.203(e) is stored and used only in Room B.
 6. Finally, in our letter, we expressed our concern over the implementation of your management control systems which permitted the violations to occur. In your response to our letter, you failed to describe those actions taken or planned to improve the effectiveness of your management control systems.

Please submit to this office, within 30 days of the date of this letter, a written statement containing the requested information.

Sincerely,


Thomas T. Martin, Director
Division of Engineering and
Technical Programs

cc:
Public Document Room (PDR)
Nuclear Safety Information Center (NSIC)
Commonwealth of Pennsylvania

bcc:
Region I Docket Room (w/concurrences)
Senior Operations Officer (w/o encl)
Nancy Dennis

Dr. Edward Skladaitis
U.S. Department of Labor - OSHA
U.S. Customs House - Room 242
2nd & Chestnut Streets
Philadelphia, PA 19106

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Department of Health, Education and Welfare
National Institute for Occupational Safety and Health
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February 7, 1984

Thomas T. Martin
Division of Engineering and
Technical Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

RE: Inspection Nos. 30-02959/83-01 and 70-01362/83-01
License Nos. 37-00467-34, SNM-1369
Docket Nos. 30-02959 and 70-01362

Dear Mr. Martin,

Attached is Hahnemann University's response to the NRC's letter dated December 23, 1983. Administration supports and concurs with the attached response which was prepared by our Ionizing Radiation Control Committee.

Please feel free to contact me should you require any additional information.

Sincerely,

Lewis C. Mills, M.D.
Vice President for Health Affairs

LCM/pbk

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