



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND 20814

APR 13 1979

Your Reference: Inspection 79-01

Mr. George H. Smith
Chief, Fuel Facility and Materials Safety Branch
U.S. Nuclear Regulatory Commission, Region I
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Smith:

This letter is in reply to your report of March 26. We reviewed your findings at the conclusion of the inspection and on receipt of your report. All of the infractions and deficiencies noted in the report have since been corrected. Since some of the laboratories were inspected independently by members of your staff, our health physics staff had some difficulty in confirming some of the findings.

A response to each item in the Notice of Violation and in the body of your report follows:

- A. The three individuals in need of formal instruction attended the one-day course "Radiation Safety in the Laboratory" on March 21. In the future, the Radiation Committee will suspend the use of radioactive materials by authorized users who fail to insure that all radiation workers under their supervision attend such training. In addition, we expect to have functioning by July 1 an automated data processing system, which will permit the Radiation Safety Branch to effectively audit for compliance with 10 CFR 19.12.
- B-1. A review of the radiation exposure histories of Nuclear Medicine personnel indicates that extremity monitoring would not be required under the provisions of 10 CFR 20.202 (a)(1). However, in line with our conservative attitude regarding personnel monitoring, the Nuclear Medicine Department will insure that extremity dosimeters are worn by all individuals who dose patients even on an occasional basis.

The individual working with P-32 and wearing her film badge under her clothing immediately put it on her laboratory coat and will continue to do so in the future.

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- B-2. The two laboratory sinks reported to contain measurable quantities of radioactive materials were surveyed and found to contain nanocurie levels of P-32. Personnel in both laboratories routinely return all radioactive liquid waste to the Radiation Safety Branch for disposal. However, Radiation Committee policy does permit sewer disposal of the second rinse of contaminated glassware. With an average daily sewage flow of approximately 2 million gallons per day, there is no possibility of exceeding the limits under the provisions of 10 CFR 20.303. Periodic waste water samples are also analyzed to confirm that radionuclide concentrations and the total activity released do not exceed applicable limits.
- C. A liquid radioactive waste container located in Building 10, Room 9B-19, was immediately removed by the Radiation Safety Branch for proper disposal. This was the source of the measured radiation levels in the hallway. A thorough investigation was made of the incident, and it was determined that laboratory personnel had performed an experiment utilizing 158 microcuries of Na-22 of the previous day (February 27) and made a request for a radioactive waste pickup for February 28. Instead of following the usual procedure of placing the liquid Na-22 waste in a smaller plastic container and storing it behind 4 inch lead bricks, it was placed in an unshielded container designated for E-3 waste only. This was done in anticipation of the scheduled pickup. All laboratory personnel have been instructed in the proper procedures for handling Na-22 waste in the future. Since the original liquid had been solidified for disposal, a 500 microcurie Na-22 solution was prepared in a similar geometry to that existing during the inspection. Measurements were made using a calibrated Victoreen 470A Panoramic Ion Chamber survey meter. The results (adjusted to 158 microcuries) indicated a dose rate of 0.8 mR/hr at 1 foot and 0.2 mR/hr at 1 meter. Under the circumstances, it would not have been possible for any person continuously present in the unrestricted area to practically exceed 100 mrem in any seven consecutive days.
- D-1. The individual using P-32 and not wearing a laboratory coat immediately put one on when questioned by the inspector. The use of protective clothing will continue to be emphasized during training sessions and in laboratory surveys.

Individuals were reported to be handling tritium without lab coats or gloves in Room 133 of Building 8. No such room exists and no protective clothing violations were noted by the area health physicist during a survey of Building 8. The

investigators in Building 3, Room B1-06, were not using radioactive materials at the time your representatives surveyed their laboratory; and they work very infrequently with radioactive materials in this room.

An individual reportedly entered the shoe-cover area of Building 21 without such covers. This procedure is rigidly enforced by a health physicist assigned to this area. In a telephone conversation with Dr. Glenn of your office, the individual in question was stated to be a maintenance man checking the emergency lighting system. Several health physicists observed this individual and, at the time, he was wearing disposable paper booties. The discrepancy may be as a result of only a portion of the laboratory area in question having a requirement for shoe covers. In any event we will continue to exercise vigilance to assure it does not occur in the future.

- D-2. Your report indicated that an individual in Building 37, Room 4A21, was smoking while working with radioactive materials and wearing protective gloves. The matter was investigated, and it was disclosed that the policy of no smoking in the laboratory is strictly enforced. Only one individual in the group smokes, and she does not work with radioactive materials. This individual was apparently observed smoking with gloves in the corridor outside of the laboratory. The gloves are worn not for personal protection but to protect experiments from cross-contamination.

In regard to food being stored in a refrigerator containing radioactive materials in Building 2, Room B1-13, this is not a radioactive materials laboratory; and the refrigerator in question has, to the best of our knowledge, never been used for the storage of radioactive materials. The area health physicist surveyed all the refrigerators on the second floor of Building 5 containing radioactive materials, and no food or drink were found. A bottle of salad dressing found in a refrigerator in Building 8 opposite Room 110 was immediately confiscated by the area health physicist. Although no one admitted knowledge of its presence, all personnel were made aware that food was not to be stored in refrigerators containing radioactive materials. The policy concerning this matter will be repeatedly emphasized in radiation safety training courses and routine health physics surveys. Also, the health physics staff has been instructed to immediately confiscate any food stored in violation of this policy.

Individuals working in the sub-basement of Building 3 and in Building 6, Room 218, have been instructed to conduct daily contamination surveys and record their findings in a laboratory record. Performance will be periodically monitored by the health physics staff.

- E. Room 133 in Building 5 is an administrative office and does not contain radioactive materials. The other areas noted were immediately posted.

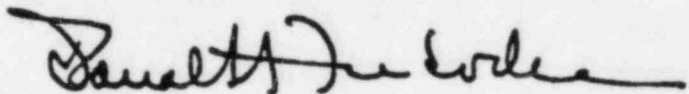
In your letter you commented on the need to improve the effectiveness of our management audit system to avoid future items of noncompliance. Currently the Radiation Safety Branch reports the more serious infractions to the Radiation Safety Committee. The Committee usually suspends its approval for the laboratory's use of radionuclides until a satisfactory level of compliance is secured. Approximately 1,700 laboratories and 3,500 users of licensed materials are involved. Therefore, of necessity, action has been taken on a priority basis. The following measures will be taken to improve the effectiveness of the radiation safety management audit system.

1. I shall send a memorandum to all authorized radionuclide users reminding them of their responsibilities as outlined in the NIH Radiation Safety Guide and the possible consequences of noncompliance.
2. All authorized users will be asked to designate one of their staff to assure compliance with all radiation safety regulations and policies at all times.
3. We shall remind the Institute Scientific Directors of their responsibility in assuring compliance with NRC requirements and NIH radiation safety policies for all radiation activities conducted under their direction.
4. The Radiation Committee will be requested to consider delegating additional authority to the Radiation Safety Officer to impose immediate sanctions in cases of recurring infractions. The Committee members will also be asked to visit problem laboratories.
5. The Radiation Safety Branch will provide the NIH Deputy Director for Science with a list of laboratories inspected and violations found each month. Copies will be sent to the Radiation Committee and each of the Scientific Directors for action in securing compliance.

6. The Radiation Safety Branch is in the process of hiring another full-time health physicist to assist in meeting the increasing demand for health physics services and new regulatory requirements. The use of additional health physics technicians and part-time employees to support the professional staff will be considered.
7. The entire safety program at NIH is in the process of reorganization. The plan provides for increasing the level of laboratory surveillance by various safety professionals. This can be expected to have a favorable impact on the level of compliance with radiation safety requirements.

Although we are unable to verify some of your findings, please be assured of my continuing cooperation in striving for NIH's full compliance with all NRC rules, regulations, and license conditions. We are committed to maintaining radiation exposures and the release of radioactive effluents to unrestricted areas at the lowest levels reasonably achievable. Should you have any questions or comments regarding our corrective actions, any unresolved issues, or any other aspect of the NIH radiation safety program, please feel free to contact Mr. Michael Musachio, Radiation Safety Officer (301-496-2254), or Dr. Gerald S. Johnston, Chairman, Radiation Committee (301-496-6455).

Sincerely yours,



Donald S. Fredrickson, M.D.
Director

NATIONAL INSTITUTES OF HEALTH

REQUEST FOR PURCHASE AND USE OF RADIOACTIVE MATERIALS

NOTE: This request MUST be submitted to Building 21 for EACH INDIVIDUAL PACKAGE of radioactive material ordered, regardless of whether procured through a Purchase Order or Telephone Charge Order. All items MUST BE COMPLETED.

INSTRUCTIONS FOR KEYPUNCH

FOR CARD-TYPE "U" (IN COLUMN ONE) CARRY THE DATA FORWARD FROM PREVIOUS CARD-TYPE "I" IN COLUMNS 2-20, AND 53-84.

PRINT CLEARLY The Requested Information in the Blocks Below

CLEARANCE NUMBER	
1	2
1	7

OFFICE USE ONLY	
8	13

PLACE A LETTER IN COLUMN 14 OF THE "ORDER NUMBER" BLOCK TO THE RIGHT BASED ON THE FOLLOWING:
T - TELEPHONE CHARGE ORDER
P - PURCHASE ORDER

ORDER NUMBER	
14	20

CHEMICAL COMPOUND	
21	(PLEASE BEGIN COMPOUND NAME IN COLUMN 21)

SYMBOL		MASS NO.		ACTIVITY IN MICROCURIES	
53	54	55	57	58	65

COST			
66	69	70	71

OFFICE USE ONLY			
72	75	76	80
81	82		

ENTER THE NAMES AND ID NUMBERS OF ALL PERSONS WHO WILL USE THIS MATERIAL

	IDENTIFICATION NO.	LAST NAME	FIRST NAME
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52
U	21 26 27	42 43	52

TO LIST ADDITIONAL USERS, ATTACH ANOTHER NIH-88.

THIS NUCLIDE WILL BE USED (Enter number in box)	SPACE NEEDED IN THE ISOTOPE LABORATORY, BLDG. 21 (Enter number in box)	NAME AND ADDRESS OF SUPPLIER
1 - IN VITRO 2 - IN ANIMALS 3 - IN HUMANS	1 - NONE 2 - STORAGE FOR BULK SHIPMENT 3 - STORAGE, HOOD AND LABORATORY SPACE	

LIST ALL ROOMS OR AREAS WHERE NUCLIDE WILL BE USED

DESCRIBE BRIEFLY THE PROCEDURES THAT WILL BE USED

APPLICATION SUBMITTED BY	TYPED OR PRINTED NAME OF RESPONSIBLE INVESTIGATOR		SIGNATURE	
	BUILDING	ROOM NUMBER	TELEPHONE NUMBER	INSTITUTE
				DATE

RADIATION SAFETY SURVEY REPORT

Submit 3 copies of this form to:

RADIATION SAFETY BRANCH, BUILDING 21
Telephone 496-5774

Keep one copy for your records

Please PRINT clearly the requested information in the blocks provided

1	2	3
---	---	---

BUILDING SUFFIX

4	5
---	---

FLOOR

6

WING

7	8	9	10
---	---	---	----

ROOM NUMBER

SUFFIX

11	12	13	14	15	16
----	----	----	----	----	----

MONTH

DAY

YEAR

17	18	19	20	21	22
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AUTHORIZED USER NUMBER

Authorized Investigator

Telephone #

Surveyor

Telephone #

23	24
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SURVEY PERFORMED BY (Place appropriate code in blocks):

MO = Investigator's monthly

CO = Contractor

HP = RSB Health Physicist

OO = Other

Radionuclides used in this location:

SHEAR SURVEY RESULTS

Location	DPM	NUCLIDE	Location	DPM	NUCLIDE
1			6		
2			7		
3			8		
4			9		
5			10		

Area Diagram and Sampling Sites

THIS SECTION FOR USE BY RSB OR CONTRACTOR PERSONNEL ONLY

COMPLIANCE ITEMS

ROOM AND STORAGE AREAS POSTED.....	<input type="checkbox"/>	25	CONTAINERS & EQUIPMENT LABELED.....	<input type="checkbox"/>	26	SURVEY RECORDS ADEQUATE.....	<input type="checkbox"/>	27
INVENTORY, DISPOSAL RECORDS ADEQUATE.....	<input type="checkbox"/>	28	PERSONNEL MONITORING.....	<input type="checkbox"/>	29	RADIONUCLIDE STORAGE.....	<input type="checkbox"/>	30
PIPETTING DEVICES.....	<input type="checkbox"/>	31	FOOD, DRINK, OR SMOKING.....	<input type="checkbox"/>	32	GLOVES, LAB COATS.....	<input type="checkbox"/>	33
ABSORBENT PAPER, TRAYS.....	<input type="checkbox"/>	34	WASTE HANDLING PRACTICES.....	<input type="checkbox"/>	35	SHIELDING.....	<input type="checkbox"/>	36
HOODS AND VENTILATION.....	<input type="checkbox"/>	37	PERSONNEL TRAINING.....	<input type="checkbox"/>	38	OTHER.....	<input type="checkbox"/>	39
SURVEY INSTRUMENTS.....	<input type="checkbox"/>	40	NIH #	<input type="text"/>	41	CONTAMINATION DEGREE.....	<input type="checkbox"/>	47
			PMS #	<input type="text"/>	42	CONTAMINATION EXTENT.....	<input type="checkbox"/>	48

ADDITIONAL INFORMATION, REMARKS