

December 15, 1986

U.S. Nuclear Regulatory Commission, Region III
Materials Licensing Section
799 Roosevelt Road
Glen Ellyn, IL 60137

Ref Control No.: 82551

Dear Sir:

Attached for your consideration with the subject license application are some minor modifications to correct several typos and add information not included in the initial submission.

Only the changed pages in the initial submission are attached. Changes are highlighted.

If you have any questions please contact me at 414-544-3536.

James M. Howard, II

James M. Howard, II
Regulatory Programs Manager
Mail Code: w-709

/eg
Encl.
1215/m

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REGION III

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REG3 LIC30
34-24849-01 PDR

ATTACHMENT 2

Items 5/6

<u>SOURCE</u>	<u>MODEL #</u>	<u>MAX ACTIVITY</u>	<u>DESCRIPTION/USE</u>
BUILDING K TRAINING -			
CE-141	NES-9014	4 millicuries	Combi-vial, sealed 5cc epoxy. Used to calibrate Nuclear Gamma Cameras.
Barium-133	NES-138T NES-358	.6 millicures	Solid Used to calibrate Nuclear Gamma Cameras.
ELECTRONICS TEST - BLDG J -			
AM-241	NER-478	600 millicuries	Solid. Used to test radiation imaging devices. Uses capsule LE 316B, Amersham Corporation AMC17.
NUCLEAR ENGINEERING - BLDG H -			
TC-99m		30 millicuries	Liquid. Used in the testing of Nuclear Imaging devices.
NUCLEAR PRODUCTION - BLDG C -			
CS-137	NES-356	1 millicurie	Solid. Used to calibrate Nuclear Gamma Cameras.
TC-99		400 millicuries	Liquid. Used in the testing of Nuclear Imaging devices.

1121/m

ATTACHMENT 3

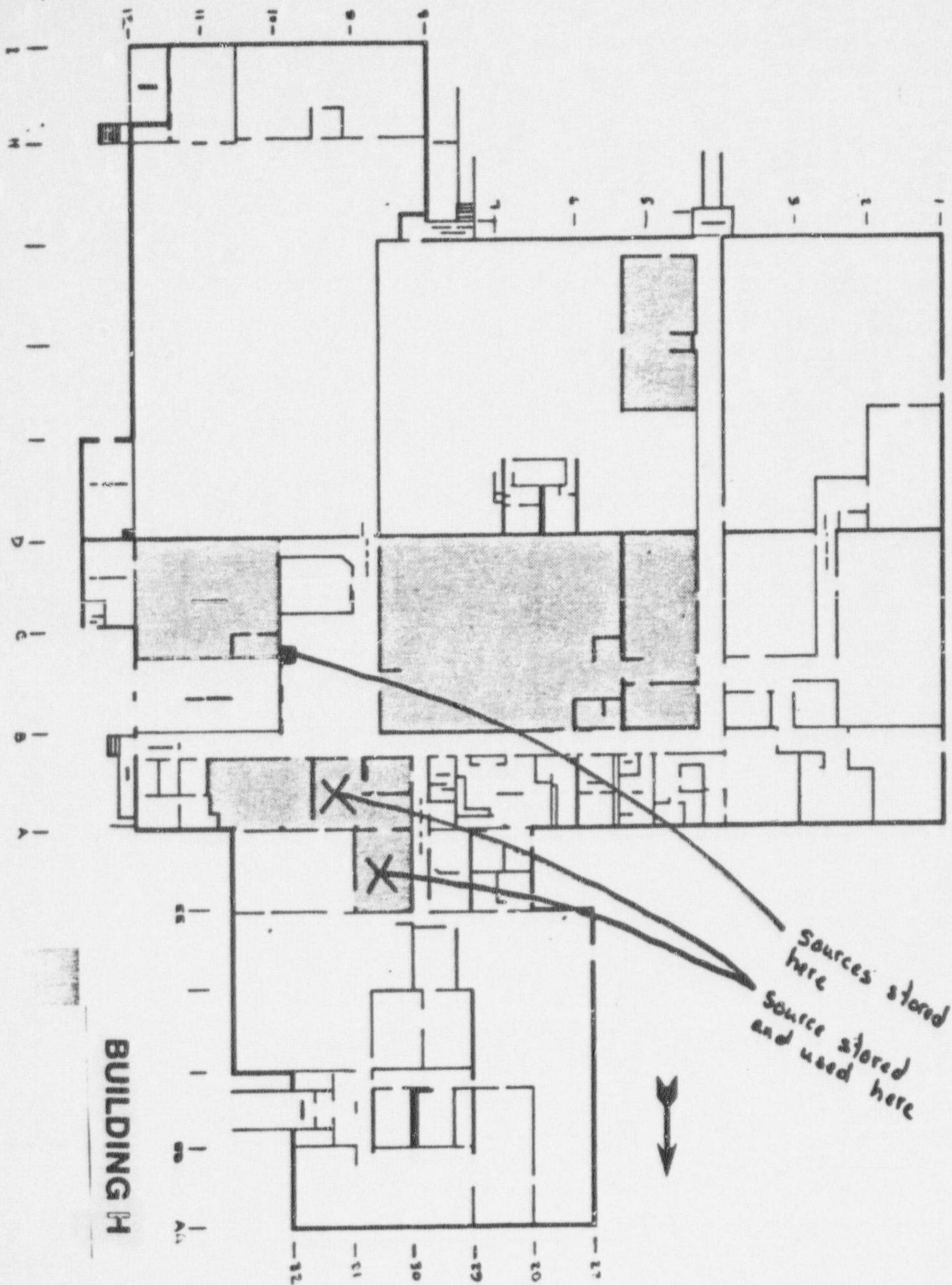
ITEM 7/8: RADIATION SAFETY TRAINING

Initially, the Radiation Safety Officer, each of the Deputy Radiation Safety Officers, and each individual user will be trained by Robert A. Jucius (see Appendix 3A for CV) in accordance with the course outline in Appendix 3E.

This training will be completed prior to the end of 1986.

Subsequently new individual users will be trained by the RSO or DRSO. All personnel will receive refresher training provided by on an annual basis *by a qualified expert.*

Item 9



ATTACHMENT

Available Radiation Instrumentation

<u>Type of Instrument</u>	<u>Manufacturer</u>	<u>Model</u>	<u>Quantity</u>	<u>Radiation</u>	<u>Sensitivity</u>	<u>Cal Freq</u> ¹
Survey	KEITHLEY 28775 Aurora Rd Solon, OH 44139	36100	1	XRAY/GAMMA	200mR/hr- 20R/hr	52 wks
Survey	VICTOREEN 10101 Woodland Ave. Cleveland, OH 44139	470A	1	XRAY/GAMMA	0-1000R/hr	52 wks
Survey	VICTOREEN	470A	2	XRAY/GAMMA	0-1000R/hr	52 wks
Geiger counter	EBERLINE Airport Road P.O. Box 2108 Santa Fe, NM 87501	E520	1	BETA/GAMMA	0-2000mR/hr 0-24000 CPM	26 wks
Dose Calibrator	^N CAPITEC 540 Alpha Dr Pittsburgh, PA 15238	CRC5	1	GAMMA	6 Curies $\pm 10\%$	checked monthly

¹ Calibration for at least 2 points on each scale used for radiation protection purposes will be requested of the vendor or

*Nuclear Medicine Associates
9726 Park Heights Avenue
Cleveland, Ohio 44125
NAC License No. 34-16272-01*

ATTACHMENT 5

ITEM 10/11: RADIATION PROTECTION PROGRAM

1. Organization Structure:

The designated Radiation Safety Officer has overall responsibility for all radiation safety activities conducted under this license. To fulfill this responsibility, several Deputy Radiation Safety Officers have been designated. These Deputy Radiation Safety Officers are responsible for use and safety of radioactive materials and compliance with license requirements within their respective facilities.

2. Leak Testing:

Leak testing of seal sources as required by the NRC license and the State of Ohio is conducted at 6 month intervals in accordance with procedures and materials provided by Health Physics Associates, 3304 Commercial Avenue, Northbrook, Illinois. Prior to the time the leak test is due, a leak test kit is purchased. The test is conducted in accordance with the directions provided, and the swipes returned to Health Physics Associates. Results are reported to GE in microcuries, reviewed by the DRSO for compliance, and filed. If the results should indicate leakage in excess of allowable limits, the source is immediately removed from use and the RSO notified.

3. Radioactive Material Orders:

Such orders may be placed by the RSO or any of the DRSO's. These are placed with a single specified buyer. Prior to placing the order, the buyer must obtain the approval of the Radiation Safety Officer to assure that the quantities ordered are not in excess of the licensed limits.

4. Authorized Users:

Individuals may be authorized to use the licensed radioactive materials under the supervision of the responsible DRSO's. These users are required to receive the training specified in Attachment 3 Item 7/8.

5. Ancillary Personnel:

Housekeeping and other personnel, with the exception of the RSO, DRSOs, and individual users do not have access to sources. Security personnel at each affected facility are aware of the presence of radioactive material and have been instructed to contact the RSO or DRSO in the event of any facility emergency which might involve the material. When in use, all radioactive material is under the direct control and supervision of the individual users, DRSO, or RSO. Housekeeping, Security, and other personnel are not permitted access to the sources

6. Radiation Safety:

Laboratory apparel (i.e., lab coats and gloves) is required for individuals transferring liquid radioactive sources from syringes into phantoms, vials, or other containers. Once the container has been verified to be clear of contamination, laboratory apparel can be removed. Remote pipetting devices are not used.

Limitations for handling liquid sources are described in Standard Procedures SP-1104-2. The Technetium-99m handling area is designed such that all handling of liquid sources is done behind a table-top lead shield. No other laboratories require special handling areas.

When being transferred to the area of use, sources exceeding 15mCi shall be placed in lead pigs and phantoms shall be placed on carts.

Radioactive materials are stored in storage cabinets when not in use or are permanently mounted into test boxes. When a source arrives at GE-Solon, it is assigned a serial number. This number and isotope information are written on a radioactive materials label and the label is placed on the source, as well as the source container, if applicable. Areas where radioactive materials are used are posted with "Caution - Radioactive Materials" signs. This sign is also posted on test boxes and area radioactive materials storage containers.

Contaminated articles, such as gloves, absorbent paper, wipes, etc. are placed in a garbage can labeled with a radioactive materials sign. Because TC-99 has a low half-life, solid waste is held for 10 half-lives before disposal. If necessary, the waste is placed in the radioactive waste disposal room for decay. The waste bag is labeled with a radioactive materials sign. Contaminated articles which are not to be disposed of as waste are placed in plastic bags, labeled as radioactive materials and segregated in the laboratory or placed in the area radioactive materials storage cabinet.

Users of radioactive materials are not permitted to dispose of waste unless the disposal is approved by the Radiation Safety Officer. All radioactive materials, regardless of whether they have decayed and can be disposed of, are stored in the area storage cabinet until the Radiation Safety Officer removes them for transfer into the radioactive waste barrel, if solid sources, or until approved for disposal into the sanitary sewer. For short-lived generated paper waste, waste is allowed to decay for 10 half-lives and the garbage bag is surveyed with a GM counter prior to disposal as normal trash.

Radioactive materials, when transferred to the area of use, are logged into area log books. An additional daily use log book is provided in areas where (1) more than one user is involved and (2) more than one source is used. Information provided in the daily use log includes: assigned serial number, isotope, activity, individual using the source, and time out/in. Sources designated for disposal are logged out of the area log book and into a source disposal log book maintained by the Radiation Safety Officer.

Contamination control in the laboratory includes a wipe test of the counter top after transfer of liquid sources into containers for use. Eating, drinking, and smoking are prohibited in laboratories where liquid source preparation is performed.

7. Procedures:
See Appendix 5A

department that requires the use/storage of radioactive material. The RSO shall be notified immediately.

NOTE: The GE-Solon Radiation Safety Officer is R. Locke
Telephone 216-248-1800 (2136)

If R. Locke is not available, then call: Eric Donafee
Telephone 216-349-8460.

7.2 Employee Contaminated with Radioactive Isotope

In the event that an employee is contaminated with radioactive isotopes, immediate steps shall be started by the employee and a supervisor.

7.2.1 The RSO shall be notified immediately to supervise and monitor the cleanup.

7.2.2 Immediate decontamination (cleanup) of contaminated areas shall be started with removal of contaminated clothing and washing of contaminated skin using a mild soap.

"CAUTION" WHEN WASHING PARTS OF THE BODY, DO NOT ALLOW WATER THAT HAS BEEN IN CONTACT WITH CONTAMINATED SKIN TO CONTACT UNCONTAMINATED SKIN. THIS ACTION CAN RESULT IN THE SPREAD OF CONTAMINATION. FLUSH SOAP OFF WITH RUNNING WATER.

7.2.3 The RSO will monitor cleanup of contaminated clothing and the final cleanup of the employee.

7.2.4 The RSO shall notify the employee and employee's supervisor immediately regarding the accident, risks, and health aspects followed with a written memo indicating the same. Further, if the RSO believes additional tests are necessary, then he shall notify the G.E. Dispensary in writing of the required tests.

8.0 WIPE TEST

Wipe test procedure for new liquid sources and solid sources.

8.1 A wipe test is to be performed to determine any gross contamination or source leakage at:

8.1.1 Incoming inspection of new sources. Refer to SP-1104-5.

8.1.2 When filling a phantom or adding liquid to vials.

8.1.3 Whenever a source is suspected of leaking or a solid source is broken.

NOTE: The RSO and DRISO must be notified if a source is leaking or a solid source is broken.

5.3 Log Book

A Source Log Book shall be maintained by each deputy Radiation Safety Officer (DRSO). Each source of radioactive material shall be assigned a number and entered into the Source Log Book along with survey data information.

5.4 Source Transportation

Radioactive material will be transported in the original shipping container.

6.0 CAUTIONS

As a safety precaution, the following rules must be adhered to:

- 6.1 Always wear a film badge when working with or around radioactive sources.
- 6.2 Avoid prolonged handling of any sources.
- 6.3 Always take care as not to drop or break radioactive sources.
- 6.4 Place all packages and containers of radioactive material in a place so that they will not get damaged, smashed, or accidentally discarded.
- 6.5 Place any damaged package or source in a plastic bag and in an area to prevent further damage. If the source was a liquid and was spilled, isolate and secure the area to prevent possible spread of contamination to other area (Reference Safety Procedures SP-1104-2). Notify the RSO immediately.
- 6.6 Loss or suspected loss of a source shall be reported to the RSO immediately.

7.0 PACKAGE & SOURCE SURVEY

7.1 Radiation Survey (Packages)

- 7.1.1. Using end window GM detector, scan with probe over the surface of the package and record maximum reading. Repeat 3 feet from the package surface in an area of the maximum reading.
- 7.1.2 Record readings in log book.
- 7.1.3 If readings are in measured excess of 200 mR/hr at surface of the package or 10 mR/hr at 3 feet, notify the RSO immediately and isolate the package from further contact.

7.2 Contamination Surveys (Package and Sources)

NOTE: RADIATION LEVELS FROM SOURCES SHIPPED IN LEAD SHIELDING WILL BE MUCH HIGHER THAN THOSE NOT SHIELDED. DO ALL TESTS WITH MINIMUM DELAYS TO ASSURE MINIMUM EXPOSURES TO RADIATION.

- 7.2.1 A wipe (leak) test is to be performed to determine a gross contamination of package (source) leakage at: