



March 4, 1996

Materials Licensing Section  
U.S. Nuclear Regulatory Commission, Region III  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Subject: Application for a New Radioactive Material License

Dear Sir and/or Madam,

Wyle Laboratories respectfully requests a Radioactive Material License in order to operate the Radiac Laboratory for the United States Air Force, Newark Air Force Base, Aerospace Guidance Metrology Center in Newark, Ohio. The Radiac Laboratory has been in operation for many years and presently operates under Radioactive Material Permit Number 34-09220-1AFP. This Permit was issued by the United States Air Force's Radioisotope Committee under its Nuclear Regulatory Commission Master Material License Number 42-23539-01AF.

The Radiac Laboratory will continue to provide the same calibration services for the United States Air Force, subsequent to privatization of Newark Air Force Base. Also, Wyle Laboratories will offer the same calibration services commercially. Upon privatization, this facility will no longer be a United States Air Force Base, but will be the property of the Heath-Newark-Licking County Port Authority. Personnel being hired by Wyle Laboratories, for the Radiac Lab and other positions, are currently civil servants working at Newark Air Force Base. This also includes the current Radiation Safety Officer and other authorized users.

Please find enclosed the application with supplements and the application fee for a new license. Due to the sensitive nature concerning national defense, an issue date on or prior to July 1, 1996 is respectfully requested, in order to continue the Air Force's mission without interruption. Please direct any questions or comments concerning this application to the undersigned at Wyle Laboratories, Huntsville Facility, (205) 837-4411, extension 283.

Sincerely,

J. Gregory Mason  
Transition Radiation Safety Officer  
Wyle Laboratories - Newark Facility

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PDR ADDCK 03034085  
C PDR

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REGION III

## APPLICATION FOR MATERIAL LICENSE

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 9 HOURS. SUBMITTAL OF THIS APPLICATION IS NECESSARY TO DETERMINE THAT THE APPLICANT IS QUALIFIED AND THAT ADEQUATE PROCEDURES EXIST TO PROTECT THE PUBLIC HEALTH AND SAFETY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0120), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

## APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

DIVISION OF INDUSTRIAL AND MEDICAL NUCLEAR SAFETY  
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS  
U.S. NUCLEAR REGULATORY COMMISSION  
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, MAINE, MARYLAND,  
MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, PENNSYLVANIA,  
RHODE ISLAND, OR VERMONT, SEND APPLICATIONS TO:

LICENSING ASSISTANT SECTION  
NUCLEAR MATERIALS SAFETY BRANCH  
U.S. NUCLEAR REGULATORY COMMISSION, REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

ALABAMA, FLORIDA, GEORGIA, KENTUCKY, MISSISSIPPI, NORTH CAROLINA, PUERTO  
RICO, SOUTH CAROLINA, TENNESSEE, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,  
SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION  
U.S. NUCLEAR REGULATORY COMMISSION, REGION II  
101 MARIETTA STREET, NW, SUITE 2900  
ATLANTA, GA 30323-0199

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN,  
SEND APPLICATIONS TO:

MATERIALS LICENSING SECTION  
U.S. NUCLEAR REGULATORY COMMISSION, REGION III  
801 WARRENVILLE RD.  
LISLE, IL 60532-4351

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS,  
LOUISIANA, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA,  
OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH,  
WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING SECTION  
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TX 76011-8054

1. THIS IS AN APPLICATION FOR (Check appropriate item)

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A. NEW LICENSE

B. AMENDMENT TO LICENSE NUMBER

C. RENEWAL OF LICENSE NUMBER

34-26704-01

2. NAME AND MAILING ADDRESS OF APPLICANT (Include Zip code)

Wyle Laboratories  
813 Irving-Wick Drive West  
Newark, Ohio 43507

3. ADDRESS(ES) WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Wyle Laboratories  
813 Irving-Wick Drive West  
Newark, Ohio 43507

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

J. Gregory Mason

TELEPHONE NUMBER  
(205) 837-4411, ext. 283

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number, b. chemical and/or physical form, and c. maximum amount which will be possessed at any one time

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS

9. FACILITIES AND EQUIPMENT

10. RADIATION SAFETY PROGRAM

11. WASTE MANAGEMENT

12. LICENSEE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY

3P

AMOUNT

530.00

ENCLOSED \$

13. CERTIFICATION. (It is to be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39 AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER - TYPE/PRINTED NAME AND TITLE  
J. Gregory Mason, Transition Radiation Safety Officer

SIGNATURE

*J. Gregory Mason*

DATE

03-01-96

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

MAR 06 1996

301020

REGION III

PRINTED ON RECYCLED PAPER

## SUPPLEMENT TO ITEM 5 NRC FORM 313

## RADIOACTIVE MATERIAL

## A. RADIOACTIVE MATERIAL

## B. CHEMICAL/PHYSICAL FORM

## C. MAX. QTY. AUTHORIZED

1. Cesium-137	1. J. L. Shepherd and Associates, Inc. Model No. 6810 Sealed Sources	1. 4 sources; not to exceed 160 curies per source
2. Cesium-137	2. 6665-00-767-7497 (D-0062)	2. 71 sources; not to exceed 150 millicuries per source
3. Plutonium-239	3. 6665-00-767-7497 (ANUDM-6)	3. 100 source sets; not to exceed 2 microcuries per set
4. Plutonium-238	4. Amersham Plated Sources	4. 2 source sets; not to exceed 50 microcuries per set
5. Cesium-137	5. J.L. Shepherd Model 142-5S	5. 2 sources; not to exceed 30 curies per source
6. Cobalt-60	6. J.L. Shepherd Model 81-22	6. 1200 curies
7. Plutonium-238	7. Amersham Plated Sources Model No. PP.100	7. 16 source sets; not to exceed 20 microcuries per set; 320 microcuries total
8. Plutonium-238	8. J.L. Shepherd Model 149	8. 1 source; not to exceed 20 curies
9. Plutonium-239	9. AN/UDM-7 Plated Sources	9. 9 source sets; not to exceed 90 microcuries per set
10. Mixed	10. Spectrometer Calibration Source	10. less than 1 microcurie
11. Thorium-230	11. Check Source	11. 3 sources; not to exceed 10 nanocuries per source
12. Americium-241	12. Check Source	12. 2 sources; not to exceed 10 nanocuries per source
13. Plutonium-239	13. Check Source	13. 1 source; not to exceed 10 nanocuries
14. Cesium-137	14. Solid, Cesium Chloride, sealed source, special form, Amersham Model No. GB/190/S-85	14. 3 sources; not to exceed 10 curies per source

SUPPLEMENT TO ITEM 6 OF NRC FORM 313

PURPOSES FOR WHICH LICENSED MATERIAL WILL BE USED

1. Calibration sources for use in J.L. Shepherd Calibrator Model 81-10.
2. through 13. Calibration and/or storage.
14. Storage only in Atlan-Tech Model DS-50 Dosimeter Calibrators.

SUPPLEMENT TO ITEM 9 OF NRC FORM 313

FACILITIES AND EQUIPMENT

A. FACILITIES

1. All radioactive materials listed on this application are located in the underground RADIAC Laboratory of Building 92. See Attachment 9-1.
2. Building 92 is a specially designed facility with sufficient shielding to exclude external radiation which would interfere with calibrations and tests involving low-level radiation intensities, and to keep any radiation generated within the lab from exposing personnel outside the building.
3. Access to Building 92 is limited to assigned personnel and entry is controlled by the users. Lower level entry into the lab is protected by a boundary Intrusion Detection System (IDS). During off duty periods the IDS system and perimeter area fence gates are secured.
4. Composition: The laboratory consists of several different calibration areas, as well as an instrument repair area, a transient storage and receiving area, and an office area. Ranges for calibrations involving cesium-137 gamma rays, cobalt-60 gamma rays, variable energy X-rays, fast and thermal neutrons, counting systems used for alpha source calibration and nuclear spectrometer system which is used for radioisotope identification in unknown, mixed, and contaminated (impure) sources are housed in the laboratory. All sources used in the facility are sealed sources and are self-contained in protective containers to minimize external exposure and removable contamination.
5. Layout of Calibration Ranges (See Attachment 9-2): The three calibration ranges which now contain the high intensity cesium-137 source, the cobalt-60 source, the X-ray generator are laid out in essentially the same manner. These ranges are approximately 65 feet long by 20 feet wide. In each of these ranges, the level of the ceiling rises about 5 feet and the level of the floor drops about 5 feet at a point 36 feet from the range entry. Scatter from the main radiation beam off the floor and ceiling is minimized, allowing for more accurate measurements.

The range for the low intensity cesium-137 sources is 38 feet long and 14 feet wide.

The neutron range, which contains the PuBe source, is 37 feet long and 12 feet wide, and is shielded by reinforced concrete walls, floor, and ceiling 6 feet thick.

The thicknesses of the other range walls are enough to prevent radiation from one range from interfering with measurements being made in adjacent ranges. The thicknesses of all walls, ceilings, and floors are sufficient to keep radiation exposures to personnel outside of the ranges below minimum levels established by the Nuclear Regulatory Commission.

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6. Cesium-137 Capabilities: Two ranges are available for calibrations involving cesium-137 gamma rays.

The high intensity range contains a source with an activity of approximately 150 curies. The maximum exposure rate which can be obtained is about 500 roentgens per hour (R/hr). Considering the length of the range and the set of attenuators provided with the source, the minimum exposure rate obtainable is less than 0.05 milliroentgens per hour (mR/hr). This range is primarily used to calibrate gamma survey meters and personnel dosimeters.

The low intensity range is primarily used to calibrate sources of 130 millicuries or less which are in turn issued to Air Force Precision Measurement Equipment Laboratories (PMELs) for use in calibrating instrumentation able to measure 500 mR/hr or less. The 13.8 curie dosimeter calibrator is a completely self-contained irradiator capable of producing inner ring exposures of 1.75R/min and outer ring exposures of 0.82 R/min. The calibrator is used to calibrate 0-200 R and 0-600 R self-reading dosimeters. The calibrator is located in the X-ray range.

7. Cobalt-60 Capability: The cobalt-60 range contains a source with an activity of 1000 curies. The maximum obtainable exposure rate is about 14,000 R/hr, and the minimum will be less than 1 mR/hr. This range is used to calibrate instruments used in the medical field, and to test survey instrument response to high energy gamma rays (average of 1.25 MeV for cobalt-60 as opposed to 0.662 MeV for Cesium-137). The cobalt-60 source became operational in August 1989.
8. X-ray Capability: The X-ray range contains an X-ray generator capable of generating X-rays in the energy range of 10 keV to 320 keV. Through the use of filters, many different beam qualities will be available. Depending upon length of exposure time and X-ray tube-to-instrument distance, exposure rates as high as several hundred R/min and as low as a few tenths of an R/hr are possible. It is anticipated that this range will be used to calibrate instrumentation used in NDI and medical applications. The X-ray system has never been in operation and currently there is no tentative start-up date.
9. Neutron Capability: The neutron range contains a 16 curie PuBe source. A maximum dose rate of about 3300 millirem per hour (mrem/hr) and a minimum dose rate of about 10 mrem/hr are obtainable. This range is used to calibrate instrument used in the medical field and NDI, particularly in neutron radiography.
10. Alpha Capability: Alpha source workload involves the calibration of small area plutonium-239, AN/UDM-6 alpha source sets (less than 2 microcuries total activity) used by Air Force Precision Military Equipment Laboratories (PMELs) to calibrate PAC-1S alpha survey meters. This calibration involves the use of small scintillation counters. The AN/UDM-7C large area alpha source is calibrated using the nuclear spectrometer. This source is used to calibrate the AN/PDR-56F Radiacmeter, which is now the Air Force's primary alpha survey instrument. A proportional counting system, developed by the National Institute of Standards and Technology (NIST) under contract with the Air Force, allows for the traceable calibration of large area alpha sources (LAAS), 8 inches x 12 inches or less, with activities of up to 90 microcuries. The LAAS sources which are calibrated using this system are programmed to replace the AN/UDM-7C as the calibration standard for Air Force alpha survey instruments to be developed in the future.



## SUPPLEMENT TO ITEM 9 OF NRC FORM 313

## FACILITIES AND EQUIPMENT

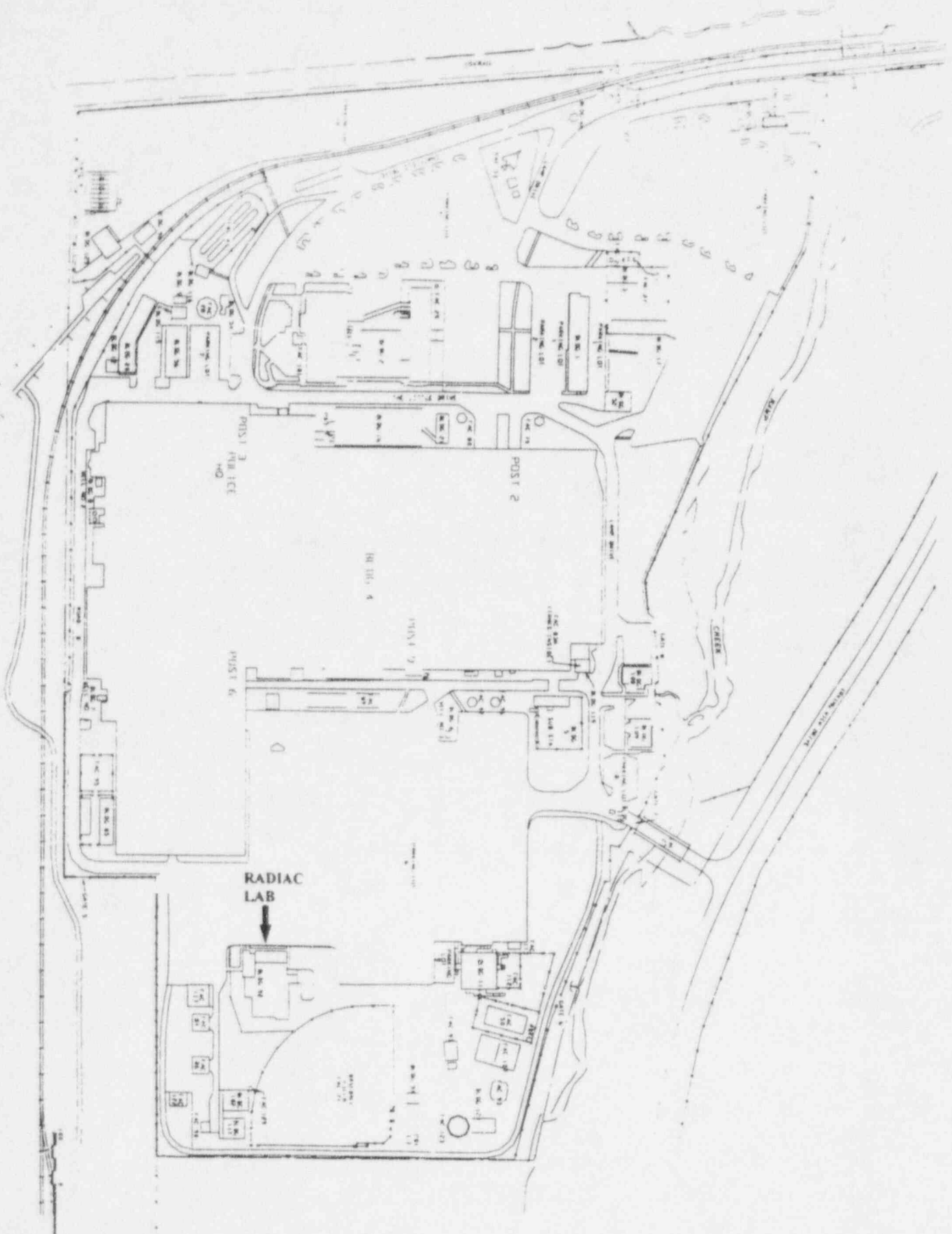
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## B. EQUIPMENT

Support instruments are calibrated after repair or at 6 month intervals at accuracies established by Air Force Calibration Technical Orders (TOs) or Commerical Manuals. NIST tracable calibrated to  $\pm 5\%$  are used for instrument calibrations. A calibration certificate showing the actual instrument calibrations. A calibration certificate showing the actual instrument response at given calibration points is supplied for each item calibrated.

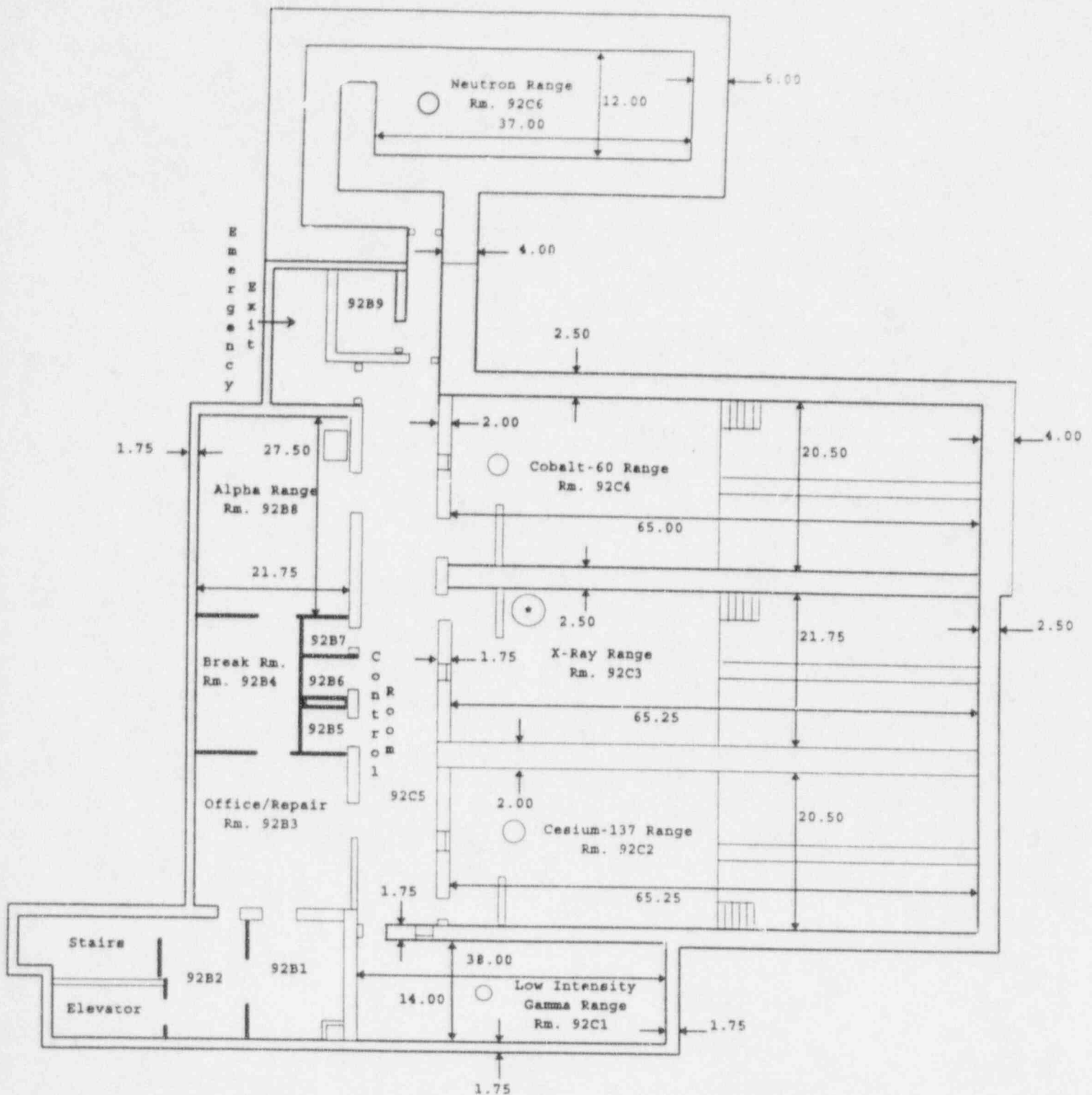
<u>Type Of Equipment</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Number Available</u>	<u>Radiation Detected</u>	<u>Sensitivity Range</u>	<u>Calibration Data</u>
Monitor	NMC	GA-2TO	1	Gamma	0-1k mR/hr	Commercial Data
Monitor	Victoreen	808D	2	Gamma	0-100 mR/hr	33K7-4-21-1
Survey Meter	Government Contract	PDR43()	2	Beta/Gamma	0-500 R/hr	33K7-4-25-1
Survey Meter	Government Contract	PDR27()	2	Beta/Gamma	0-500 mR/hr	33K7-4-4-1
Survey Meter	Eberline	ESP-1	1	Neutron	0.02-60 REM/hr	Commercial Data
Dosimeter	Dosimeter Corporation	686	100	Gamma	0-600 R	33K7-4-48-1
Digital Alarm Dosimeter	Victoreen	06-505	12	Gamma	0-9999 mR	33K7-4-80-1
Alpha Counter	Eberline	SAC-4	7	Alpha	6 Decades	33K7-4-118-1
Survey Meter	Ludlum	14-C	2	Alpha	0-5,000,000 cpm	Commercial Data
Survey Meter	Ludlum	14-C	2	Beta/Gamma	0-2 R/hr	33K7-4-123-1
Survey Meter	Ludlum	17	2	Beta/Gamma	0-50 R/hr	33K7-4-59-1
Large Area Source Counter	Canberra	AccuSpec	1	Alpha	0-infinite	33K7-5-1-1
Survey Meter	Eberline	SRM-100	1	Neutron	0.02-60 REM/hr	Commercial Data

# NEWARK FACILITY





# BUILDING 92-RADIAC LAB



- \* All dimensions are in feet.
- \* in Room 92C3, X-ray Range, is the Dosimeter Calibration Table with a Cs-137 source.
- \* Room 92B2: Receiving Area; Room 92B1: Transient Storage; Room 92B5: Womens Toilet
- \* Room 92B6: Mens Toilet; Room 92B7: Janitor Closet; Room 92B9: Shower