

NRC Form 313 I (12-81) 10 CFR 30		U.S. NUCLEAR REGULATORY COMMISSION	
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL		1. APPLICATION FOR: <i>(Check and/or complete as appropriate)</i>	
<i>See attached instructions for details.</i> Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.		<input type="checkbox"/> a. NEW LICENSE	
		<input checked="" type="checkbox"/> b. AMENDMENT TO: LICENSE NUMBER 42-02967-02	
		<input checked="" type="checkbox"/> c. RENEWAL OF: LICENSE NUMBER 42-02967-02	
2. APPLICANT'S NAME <i>(Institution, firm, person, etc.)</i> Technology Repair Division TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (512) 925-5888		3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Mr J. J. Rodriguez, Chief, General and Special Purpose Test Equipment Unit TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION (512) 925-8555	
4. APPLICANT'S MAILING ADDRESS <i>(Include Zip Code)</i> <i>(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)</i> SA-ALC/MATPCA Kelly AFB, TX., 78241		5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED <i>(Include Zip Code)</i> Bldg 340 Kelly AFB, TX., 78241	
(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)			
6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL <i>(See Items 16 and 17 for required training and experience of each individual named below)</i>			
FULL NAME		TITLE	
a. Mr Juan J. Rodriguez		Chief, General and Special Purpose Test Equipment Unit	
b. Mr Thomas E. Oliver		Electronic Measurement Equipment Mechanic	
c. Mr Jesse Arismendez		Electronic Measurement Equipment Mechanic	
7. RADIATION PROTECTION OFFICER Mr Luther M. Maulden		Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.	
8. LICENSED MATERIAL			
L I N E NO.	ELEMENT AND MASS NUMBER A	CHEMICAL AND/OR PHYSICAL FORM B	NAME OF MANUFACTURER AND MODEL NUMBER <i>(If Sealed Source)</i> C
			MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME D
(1)	Cesium-137	Sealed Source	Union Carbide Co. Oak Ridge, TN. Two Sources 130 Curies (Each)
(2)		(See Supplemental Sheet, Item 8, for	
(3)		Details of Equipment and see Atch 2)	
(4)			
DESCRIBE USE OF LICENSED MATERIAL E			
(1)	See Supplemental Sheet, Item #8, Equipment		
(2)			
(3)			
8408150332 840803 NMS LIC30 42-02967-02 PDR			

9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	Source Housing	U. S. Nuclear Corp	AN/UDM-1A
(2)			
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A	MANUFACTURER'S NAME B	MODEL NUMBER C	NUMBER AVAILABLE D	RADIATION DETECTED (alpha, beta, gamma, neutron) E	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F
(1)	Monitoring & Surveying	Admiral Corp	AN/PDR27C	1	Beta/Gamma	0-500 Mr/Hr
(2)	"	Northeastern Corp	AN/PDR27C	1	Beta/Gamma	0-500 Mr/Hr
(3)	"	Elec Nucl Corp	AN/PDR43	1	Beta/Gamma	0-500 R/Hr
(4)	"	Elec Nucl Corp	AN/PDR43	1	Beta/Gamma	0-500 R/Hr

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

☐ a. CALIBRATED BY SERVICE COMPANY

NAME, ADDRESS, AND FREQUENCY

☒ b. CALIBRATED BY APPLICANT

Attach a separate sheet describing method, frequency and standards used for calibrating instruments.

12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
<input type="checkbox"/> (1) FILM BADGE <input checked="" type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____	USAF Kelly Clinic/SGB, Kelly AFB, TX. Badges are processed by the USAF Occupational and Environmental Health Lab, Brooks AFB, TX.	<input checked="" type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____ _____ _____

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☒ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC.
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

N/A

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE

N/A

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for Items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures *(if needed)*, day-to-day general safety instruction to be followed, etc. If the application is for sealed source's also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.
16. **FORMAL TRAINING IN RADIATION SAFETY.** Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
 - a. Principles and practices of radiation protection.
 - b. Radioactivity measurement standardization and monitoring techniques and instruments.
 - c. Mathematics and calculations basic to the use and measurement of radioactivity.
 - d. Biological effects of radiation.
17. **EXPERIENCE.** Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our 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.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

N/A

b. CERTIFYING OFFICIAL *(Signature)*

c. NAME *(Type or print)*

JUAN J. RODRIGUEZ

d. TITLE

Chief, General & Special Purp Equip Unit

e. DATE

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SUPPLEMENTAL SHEET, ITEM 8

Equipment:

1. The Cesium 137 Source was provided by the Union Carbide Company at Oak Ridge, Tennessee. The isotope is used in conjunction with equipment manufactured by Nems-Clarke Company, Washington, D. C., and procured through the Department of the Navy. The source was designated as the AN/UDM-1A Radiac Calibrator Set.
2. The calibrator set consists of the Cesium 137 Source, a source container, and its stand, an adjustable table for supporting the instrument being calibrated, a length of track on which the adjustable table rides to varying distances from the source, and a telescope and tripod assembly. The adjustable table is constructed so that the equipment being calibrated may be brought into proper alignment with the radiation beam. The telescope and tripod assembly enables the operator to read the instrument from a safe point behind the source container.
3. The source container is a cylindrical shield of lead which in turn, is incased in steel (Navy Drg Ref 10929). The source is placed in a steel inner cylinder near the center of the lead shield. A conical hole is bored in one side of the shield so the radiation may emerge in the form of a cone shaped beam. A plug is provided which will attenuate the beam. The inner cylinder may be rotated to two positions thus varying the amount of the attenuation of the beam. The intensity of radiation at the outside of the container when in the secured position, is not more than 24 mr/hr.
4. The source container is constructed so that three different intensity beams may be obtained. The lowest intensity beam is obtained when the plug is in place and the inner cylinder is in the "open" position. The intermediate intensity is obtained when the plug is out and the cylinder is at the "atten" position. The highest intensity is obtained when the plug is out and the cylinder is at the "open" position. Removal of the plug and rotation of the inner cylinder are accomplished from a position behind the container, the side opposite the beam opening.
5. Other equipment in the room include work benches and storage shelves placed in convenient positions behind the source container and one 110 millicuries, CS 137 calibration source located in the northeast corner of the room. The two sources will never be utilized simultaneously. The 110 millicuries, CS 137 source is controlled under Radioactive Material Permit No. 1-0035. See attachment for location details.

SUPPLEMENTAL SHEET, ITEM 11

Radiac instruments listed in Item 10 are calibrated as follows:

<u>NOUN</u>	<u>INTERVALS</u>	<u>USAF TECHNICAL DATA USED</u>	<u>STANDARDS</u>
AN/PDR-27	6 Months	T. O. 33K-7-2-1-1 Sect 4	0062
AN/PDR-43	12 Months	T. O. 33K-7-2-1-1 Sect 25	AN/UDM/1A

Housing and Vicinity:

1. The calibrator set is installed in a second floor compartment of Bldg 340, Kelly AFB, TX. The room is 13 feet wide by 41 feet long with a 10 foot, 6 inch ceiling height. The walls forming the sides of the room are of double thickness, each wall is 10 inches thick with a 10 inch air space between. The ceiling and end walls are 10 inches thick. All construction is reinforced concrete. Entrance to this room is controlled by the individual user. Floor is lined with $\frac{1}{2}$ inch thick lead sheets.
2. The compartment immediately below the calibration room is used as a control room for engine test cells. The control room is used 16 hours a day, five days a week.
3. Adjacent to the southeast wall of the calibration room are two sets of railroad tracks. The nearest is a service spur which at present, is not being used however, occasional use is planned. The other set is a main line track outside the base boundaries.
4. The source is swiped every six months by the Base RPO or Alternate assigned to USAF Kelly Clinic. The Leak Test is performed by placing filter paper to the tip of a special tong. The shield plug, cylinder walls and well bottom are swiped in the above manner.

SUPPLEMENTAL SHEET, ITEM 15: RADIATION PROTECTION PROGRAM

Interlocks and Safety Devices Construction:

1. The calibration room will be locked when not in use. The individual user or alternate supervisor will supervise the use of the source and control the key to the calibration room. The overall program will be under the surveillance of Mr L. M. Maulden, Industrial Hygienist and RPO.
2. The microswitches are built into the AN/UDM-1A Calibration Set. One switch is actuated by removing the aperture plug. A movement of approximately .010 inches activates the switch. To this switch are connected four red lights, a bell, a buzzer and a gate lock solenoid. One red light is placed outside and above the entrance as a warning signal to personnel attempting to enter the calibration room. Two red lights are located on the inside southeast wall facing the operator. The other light is placed on the southeast outside the wall. The bell is located near the red light on the outside southeast wall. The buzzer is attached to the source chamber stand. The gate lock solenoid is on the guard fence gate. The second microswitch is actuated by the inner cylinder rotating lever and is used to turn on one red light and the gate lock solenoid. In this manner, the four red lights, the bell, the buzzer and the gate lock are on when the high intensity beam is used. When the intermediate intensity beam is being used, three red warning lights are energized and one relay (used to lock gate) is actuated.
3. Two AN/PDR-43 survey instruments will be in operation at all times during the working day. These instruments are of the GM tube type, 0-500 r/hr range. One will be located near the southeast wall and placed in such a position that it may be read by the use of the telescope. The other will be located on the workbench behind the source container.
4. A safety guard fence, striped magenta and yellow, is installed across the room immediately behind the source container. This is a deterrent to prevent the operators from unconsciously walking into the beam area and/or as a reminder that he is about to enter a hazardous area (SA-ALC Drawing 588AD7030). Access into the area forward of the source container and into the exposure area will be made through a gate on which will be affixed a sign stating an appropriate warning and bearing a standard radiation symbol. Whenever the source container is on high beam and at maximum intensity, the gate is mechanically locked. This lock is operated by a solenoid actuated by a microswitch attached to the attenuator plug. The employee is thus barred from inadvertently walking through the gate when the source is exposed. Another added feature of safety is incorporated in a buzzer which will automatically sound if the gate is accidentally left open or fails to lock securely. A standard radiation symbol will affix to each side of the source container.

SUPPLEMENTAL SHEET, ITEM 16

J. J. Rodriguez, Direct Supervisor

1. Education:

- a. Completed High School, 1956.
- b. Education at college level, including 8 hours of Biology, 8 hours of Business Administration, 4 hours of English, 8 hours of History, San Antonio College, 1957 - 1959.
- c. Completed 40-hour Atomic Defense Preparation, Johnson AB, Japan, 1955.
- d. Completed 40-hour Radiological Monitors Course, Kelly AFB, TX., February 1972.
- e. Completed Radiological Monitors Refresher Training Course, February 1975.
- f. Instructor, Radiological Monitors Course, Kelly AFB, TX.

2. Experience:

Mr J. J. Rodriguez has eleven years and seven months experience in supervising the handling of a variety of radioactive sources; such as Plutonium PU 239, Cesium 137, Krypton and Radium 126 used for certification of radiac equipment in the Precision Measurement Equipment Laboratory (PMEL). In addition, Mr Rodriguez performs the duties of Directorate of Maintenance Radiation Protection Officer, and Team Chief of the Air Transportable Radiac Package (ATRAP), SA-ALC, Kelly AFB, TX.

Mr T. E. Oliver:

1. Education:

- a. Completed 10th grade, 1949.
- b. Completed 40-hour Radiological Monitors Course, Kelly AFB, TX., Apr 1960.
- c. Completed 10-hour Radiological Monitors Course (Refresher Course), May 1974.

2. Radioisotope Handling Experience:

Mr T. E. Oliver has a minimum of 20 years experience in handling radioactive material. Experience was gained by on-the-job training with the Test Equipment Unit, Kelly AFB, TX. The OJT was conducted under the supervision of Mr J. C. Monaco. The OJT consisted of familiarization and practical training. The following T. O.s were used as a basis for the training: T. O. 11H4-8-4-1 and 11H4-8-5-1. In addition, Mr Oliver was given OJT instructions in handling radioactive material such as Cobalt 60, 76 millicuries, radium 226, 189 milligrams, plutonium PU 239, 3 microcuries, strontium 90, 1 microcury, cesium 137, 130,000 millicuries and uranium oxide U235, .01 millicuries. This experience was obtained at Kelly AFB, TX.

J. Arismendez - User

1. Education

a. Completed 11th grade, 1946.

b. Completed 25-hour Radiological Monitors Course, Kelly AFB, TX., August 1972.

2. Experience:

Mr J. Arismendez, Electronic Mechanic, Precision Measurement Equipment Section, has a minimum of five years experience handling radioactive material. Experience was gained by on-the-job training within the Precision Measurement Equipment Section. The OJT was conducted under the supervision of J. J. Rodriguez. The OJT consisted of familiarization and practical training. The following T. O.s were used as a basis for the training: T. O. 11H4-8-4-1, 00-110N-2, 00-110N-3, 11H4-1-5 and 11H4-8-5-1. In addition, Mr Arismendez was given OJT instructions in handling radioactive material such as radium 226, 189 milligrams, plutonium PU239, 3 microcuries and cesium 137, 130,000 millicuries. The experience was obtained at Kelly AFB, TX.

Qualifications of Mr Luther M. Maulden, Radiation Protection Officer, Kelly Air Force Base, Texas

Education and Qualifications:

1. Completed High School, 1950; Two years formal education with subjects in Biology, Chemistry and Administration.
2. Registered Professional Sanitarian with the National Association of Sanitarians, University of Denver, Denver, Colorado, 30 Sept 1959.
3. Registered and Board Certified Sanitarian, State of Florida, 5 May 1960.
4. Certified Senior Sanitary Engineering Technician, 6 Feb 1967.
5. Completed 86-hour Chemical-Radiological-Biological Course, Weisbaden, Germany.
6. Completed 80-hour Radiological Monitoring Course, Denver, Colorado, 1964.
7. Completed 30-hour Medical Passive Defense Course, Kelly AFB, TX., 1965.
8. Completed 80-hour Medical and Dental X-Ray Course, Bureau of Radiological Health, Rockville, Maryland, Sept 1973.
9. Completed 64-hour Radiological Health Hazards, Brooks AFB, TX., 1976.

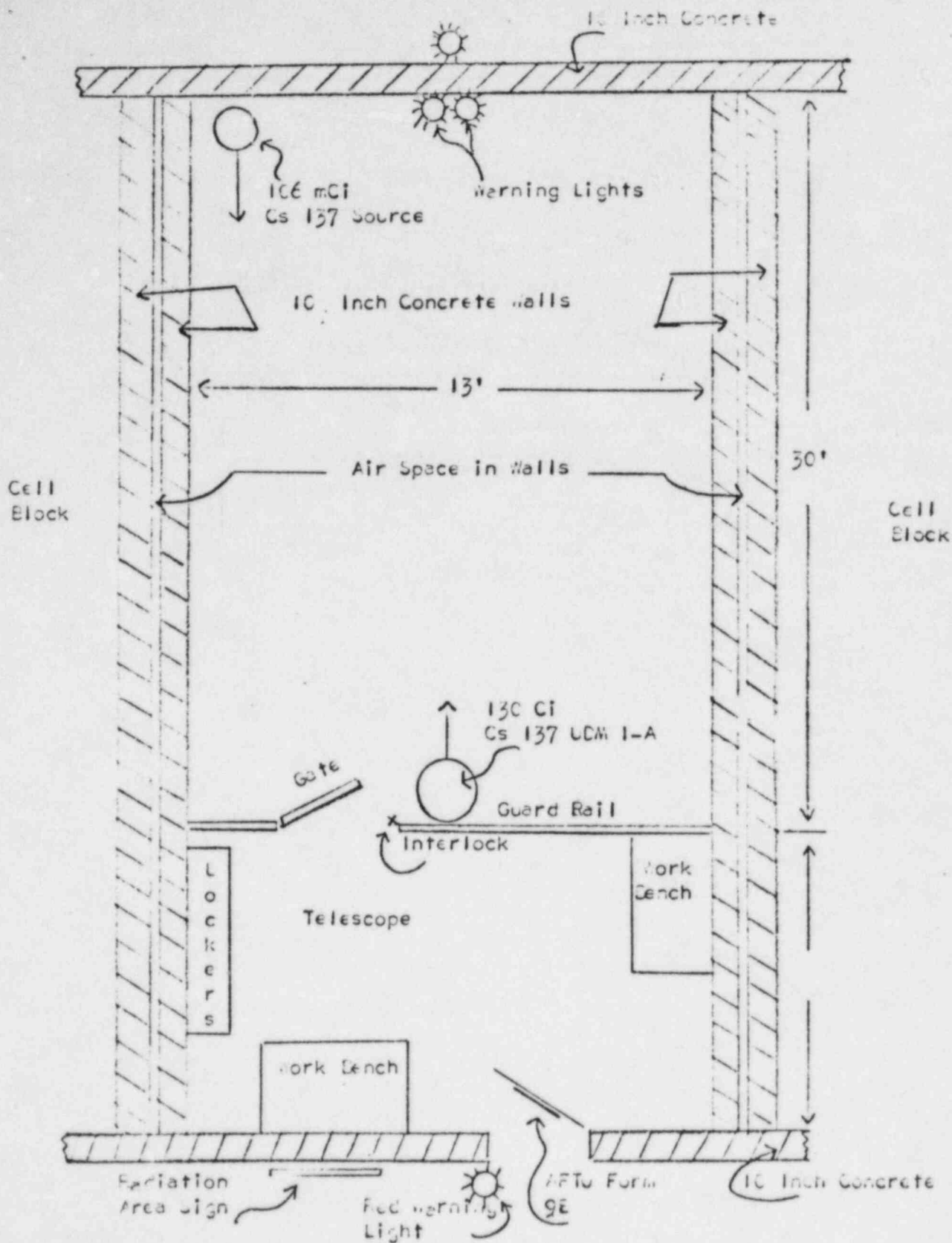
Mr Maulden is assigned to the USAF Clinic Kelly, Kelly Air Force Base, TX., as an Industrial Hygienist. As Base Radiation Protection Officer, he has responsibilities in all areas including the Radiation Protection Program. As part of this program, he conducts routine radiological surveys and performs wipe tests on certain isotopes on base. Mr Maulden has had previous experience as Radiation Protection Officer at the 5th Epidemiological Flight, Yamato AS, Japan, and at Norton AFB, California.

Qualifications of Alternate Base Radiological Protection Officer (RPO) -
Captain Jeffrey M. Harris:

The alternate base RPO is Captain Jeffrey M. Harris, Bioenvironmental Engineer, SSAN 433-98-1484. Qualifications include Bioenvironmental Engineering Course, No. B30BY9121, USAF School of Aerospace Medicine, Brooks AFB, Texas, 17 Aug 1981-4 Dec 1981. He was the primary RPO for Lowry AFB, Colorado, from January through August 1982. The breakdown of training as per Nuclear Regulatory Commission (NRC) Form 3131, Item 16, is:

- a. Principles and Practices of Radiation Protection: 15 hours.
- b. Radioactivity Measurement Standardization and Monitoring Techniques: 20 hours.
- c. Mathematics and Calculations Basic to the Use and Measurement of Radiation: 8 hours.
- d. Biological Effects of Radiation: 10 hours.

Training and experience includes leak testing of sealed sources, NRC and USAF permit and license administrative procedures, film dosimetry program and educational programs for users of radioactive material.



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ATCH #1

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DIR MAT MGT KELLY AFB TX//MMIRAA//
AGMC/MLD NEWARK AFS OH//
00-ALC/MAKLF HILL AFB UT//
SA-ALC/SGB KELLY AFB TX//
INFO SM-ALC/PME MCCLELLAN AFB CA//
AFMSC/SGPZ BROOKS AFB TX//
ACCT AF-ACXJRF

UNCLAS

SUBJ: RELOAD OF USAF CS137

RADIAC CALIBRATORS:

1. THE UDM-1 RADIAC CALIBRATORS, {FIVE EACH} AT FOUR USAF INSTALLATIONS REQUIRE RELOADING. BECAUSE, DURING THE DISMANTELING AND REINSTALLATION OF THESE CALIBRATORS, TWO UNITS WILL BE IN HOUSE AT ONE TIME. THE FOLLOWING WILL BE REQUIRED.
 - A. THE R.P.O., RADIATION PROTECTION OFFICERS, AT THE BELOW LISTED INSTALLATIONS, WILL APPLY TO AFMSC/SGPZ BROOKS AFB TX 78235, FOR AN INCREASE ON THEIR RESPECTIVE NRC LICENSES TO 230 CURIES OF CESIUM 137.

NUELLER/MMIRAA-2/53033

WILLIAM PELOW
Technical Programs Mgt
Engineering & Reliability Unit

W. M. Macdonald
53033

UNCLASSIFIED

ATCH#2

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B. 1. NEWARK AFS OH.

2. KELLY AFB TX.

3. HILL AFB UT.

2. THE SEQUENCE OF REPAIR - RELOAD WHICH WAS DETERMINED BY AGMC/NEWARK, BASED UPON REMAINING STRENGTH, IS AS FOLLOWS:

A. SER NO. A3 AT SM-ALC TO CONTRACTOR, THEN TO AGMC/NEWARK AFS.

B. SER NO. B-1 AT AGMC/NEWARK AFS TO CONTRACTOR, THEN SA-ALC/KELLY AFB TX.

C. SER NO. 121 AT KELLY AFB TO CONTRACTOR, THEN TO OO-ALC HILL UT.

D. SER NO. 100 AT OO-ALC TO CONTRACTOR, THEN TO SM-ALC MCCLELLAN AFB CA.

E. SER NO. G110 AT SM-ALC TO CONTRACTOR, THEN TO SA-ALC KELLY AFB FOR CERTIFICATION AND ACCEPTANCE PRIOR TO STORAGE. THE MOVEMENT OF THE CALIBRATORS WILL BE COORDINATED WITH THE INVENTORY MANAGER MR K. MOORE, SA-ALC/MMIIEA, TELEPHONE 512-925-6341, AUTOVON 945-6341.

mmiiea
18 Jan 53/ed

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