



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH
BETHESDA, MARYLAND ~~20036~~ 20205

September 24, 1979

Mr. Boyce H. Grier
Director, Regulatory Operations, Region I
United States Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Ref: License Numbers 19-
00296-10, 19-00296-11

Dear Sir:

This is in response to your letter of August 10, 1979, requesting information and a plan in IE Bulletin No. 79-19. The numbering of the responses below corresponds to that in the Bulletin.

Response to "Action to be Taken by Licensees"

1. The Radiation Safety Branch (RSB) currently has copies of pertinent DOT and NRC regulations, and acquires updates to these regulations as they become available. Our waste contractor follows the same policy.
2. The RSB and waste contractor maintains a current set of requirements (license) placed on the burial firm(s) receiving radioactive waste shipped from the NIH.
3. All radioactive waste is picked up from the point of generation of the waste, packed, and shipped by our waste contractor; contractor personnel are responsible for the operational aspects of these duties. Conditions on the contract specify that these operations shall be accomplished in accordance with conditions on NRC License No. 19-00296-11, and applicable NRC and DOT regulations. Mr. James Austin of the RSB, is the Project Officer on this contract and is responsible for assuring that contract specifications are met; he is also one of the named responsible individuals on NRC License No. 19-00296-11 and is the person responsible for the safe transfer, packaging, and transport of low-level radioactive material at the NIH.
4. As noted above, transfer, packaging, and transport of low-level radioactive materials is accomplished by contractor personnel. Management approved instructions and procedures exist in the form of contract

7911010593
XA

specifications detailing the proper packaging to be accomplished for various physical and chemical forms, and the integrity of packaging.

5. Supervisory personnel of the contractor have affirmed in writing to us that training is provided to employees responsible for transport, packing, and transfer of radioactive waste. The training and retraining covers DOT and NRC regulatory requirements, waste burial license requirements, and the items specified under contract noted above in item 4. Contractor personnel are also required to attend the course,

"Radiation Safety in the Laboratory" (see item 6) when entering into the employment of the contractor.

6. All individuals using byproduct materials under License No. 19-00296-10 and 19-00296-11 are required to attend the course, "Radiation Safety in the Laboratory." The proper procedures to be followed by waste generators of low-level radioactive waste are discussed in this course. Further, all generators of radioactive waste will be reformed of proper radioactive waste procedures by October 15, 1979.

7-8. Waste contractor personnel are responsible for the operational aspects of periodically auditing performance, under contract, of transfer, packing and transport of radioactive waste. As part of NIH's project officer oversight function, adequacy of the contractor's performance is checked on a routine basis. This process is being formalized and a written record maintained of NIH's audit of these activities. This procedure will be implemented by October 9, 1979, and be conducted on a quarterly basis.

9. This report provides the response required.

Response to "Provide answers for 1978 and for the first six months of 1979..."

1. During 1978, 14,905 cubic feet of low-level radioactive waste was contained in 104 shipments; for the period January to June 1979, 6,570 cubic feet was contained in 42 shipments.

2. The activity shipped during the two above periods was 75.8 and 21.6 Ci, respectively.

3. Low-level liquid radioactive waste is solidified with a mixture of cement and vermiculite before shipment. It is noted that liquid scintillation vials do not contribute to the load of this category of waste as

Page 3 - Mr. Boyce H. Grier

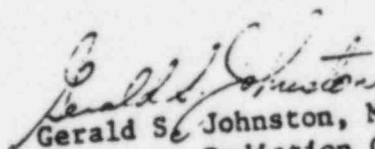
our current contractor arranges for crushing of the vials and evaporation of liquid contained. The residues are shipped to burial grounds as solid waste.

The NIH has long been aware of the importance of proper disposal of radioactive waste, including minimizing the volume going to burial grounds. For some years, compressible dry wastes have been compacted in 55 gallon drums to minimize volumes. To increase the effectiveness of this measure, a new compactor was acquired in 1975, improving the compaction ratio from 2:1 to 5:1. During the past year, increased attention has been given to holding short half-lived waste for decay rather than shipment; this has been particularly effective for P-32 wastes. As reflected in the above figures, the semiannual volume of waste decreased from 7452 cubic feet to 6570 cubic feet, a 12% reduction in volume. This took place during a period of continued increase in both numbers of incoming shipments and activity of radioactive materials.

NIH is also concerned that radioactive wastes are properly collected and transported, as well as properly packaged for burial. This is reflected in the smoothly running program established through a contract that specifies proper procedures. The contractor is responsive not only to these requirements, but also to the significant financial incentive of avoiding added costs resulting from refusal to receive improperly packaged wastes at the burial ground.

In closing, it is hoped that the information provided is sufficient. If you have any additional questions, please do not hesitate to inform us.

Sincerely yours,



Gerald S. Johnston, M.D.
Chairman, Radiation Committee, NIH

MAR 24 1983

Docket Nos. 030-01786 ✓
030-06922
030-08478
030-17872
070-01366

License Nos. 19-00296-10 ✓
19-00296-12
19-00296-17
19-00296-20
SNM-1345

Department of Health & Human
Services
National Institute of Health
ATTN: Dr. James Wyngaarden,
Director
9000 Rockville Pike
Bldg. 21, Room 110
Bethesda, Maryland 20205

Gentlemen:

Subject: Inspection No. 83-01

This refers to the routine safety inspection conducted by Mrs. Teresa Hall Darden of this office on February 16-18, 1983 of activities authorized by NRC License Nos. 19-00296-10, 19-00296-12, 19-00296-17, 19-00296-20, and SNM-1345 and to the discussions of our findings held by Mrs. Darden with Dr. R. J. Augustine and Mr. Zoon of your staff at the conclusion of the inspection.

The inspection was an examination of activities conducted under your licenses as they relate to radiation safety and to compliance with the Commission's rules and regulations and the conditions of your licenses. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, measurements made by the inspector, and observations by the inspector.

With regard to License No. 19-00296-10, the inspection was limited to a review of those activities conducted under this license relating to plutonium/beryllium (PuBe) sealed sources. The Department of Energy has identified PuBe sources with end caps not welded in place and has recommended appropriate nondestructive examination of the outer end cap welds of all PuBe sources. The inspector visually examined the welds of your PuBe sources. No apparent defects were identified; however, the inspector also discussed the advantages of conducting additional nondestructive tests by qualified personnel and appropriate radiation safety precautions during such tests. A wipe sample was taken from each end cap weld area and was analyzed in our Regional Office Laboratory. This analysis identified no significant removable radioactive contamination, which is in agreement with your leak test results.

Within the scope of this inspection, no violations were observed.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the Public Document Room.

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19pp.

2

16:07

MAR 24 1983

2

No reply to this letter is required. Your cooperation with us in this matter is appreciated.

Sincerely,

Original Signed By:
John D. Kinneman

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

cc:

Dr. R. J. Augustine, Ph.D., Radiation Safety Officer ✓
Public Document Room (PDR)
Nuclear Safety Information Center (NSIC)
State of Maryland ✓

bcc:

Region I Docket Room (w/concurrences)
Senior Operations Officer (w/o encls) ✓

for
RI:DETP
Darden/pja
3/22/83

Kinneman
RI:DETP
Kinneman
3/22/83

LICENSE NO: 19-00296-12, 17, 20

DOCKET NO. (s) 30-07724
30-06922
70-1366

PAGE OF

ATTACHED

- ☐ Appendix A
☐ Appendix B
☐ Appendix C
☐ Memo

INSPECTION REPORT NO. NIH 83-01
Dept. of Health and Human Services
National Inst. of Health Bldg. 21 Room 112
Bethesda, Maryland 20205

LICENSEE CONTACT: Dr. Robertson J. Augustine Ph.D

Telephone No:

LICENSE NO: 1

CATEGORY PRIORITY:

CATEGORY PRIORITY:

CATEGORY PRIORITY:

INSPECTION DATE (s): Feb. 16, 17, 18, 1983

TYPE OF INSPECTION:

- ☐ SPECIAL ☐ ANNOUNCED
☐ ROUTINE ☐ UNANNOUNCED
☐ DAYSHIFT
☐ OTHER

19-00296-10 30-01786
19-00296-17 30-03478
19-00296-12 30-06922 irradiators
19-00296-20 30-17872
SNP-1345 70-1366 face mask

SUMMARY OF FINDINGS AND ACTION

- ☐ NO NONCOMPLIANCE, CLEAR 591 ISSUED
☒ NO NONCOMPLIANCE, LETTER
☐ NONCOMPLIANCE, APPENDIX A

- ☐ ACTION ON PREVIOUS NONCOMPLIANCE, APPENDIX B
☐ NONCOMPLIANCE, 591 ISSUED
☐ SUPPLEMENTAL INFO, APPENDIX C

RECOMMENDATIONS
SEE BASIS IN APPENDIX C

- ☐ CHANGE CATEGORY TO:
☐ NEXT INSPECTION DATE: 2/1985

☐ CHANGE PRIORITY TO:

PERSONS CONTACTED

Dr. Robertson J. Augustine RSC
Robert A. ZOOM, MD
Bruce Smith, R.S.

* Dr. James W. Anderson, NIH
Bldg 1 NIH Bethesda Md.

INSPECTOR:

Jessie Hall-Randall 2/18/83

APPROVED:

[Signature]

3/6/83

INSPECTION PLAN AND REPORT NUMBER _____ Page _____ of _____

Plan Approved: _____ Date: _____

Licensee: _____ License No. _____

Inspection Items	Scheduled for Inspection	Post Inspection Status	Module No.
Management Meeting - Entrance and Exit Interviews (Required)	-		30703B <i>5 Hrs</i>
Program Requirements, MC 2850 (Required)			77710B <i>4.5 Hrs</i>
Followup on Noncompliance and Deviations			92702B
Independent Inspection Effort (Required)			92706B
Transportation			86740B

*Wed = 1.5 Hrs
Thurs = 1.5 Hrs
Fri = 2. Hrs.*

*Pulse: 1.5 Hrs
Plutonium Pulse makes = .75 Hrs*

INSPECTION REPORT NUMBER _____

Page ____ of ____

777108 - Irradiator

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEMS	CRITERIA	FINDING
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1. Organization

Lic Cond _____

C

Management organization?

Radiation protection organization?

Scope of program?

NOTES & REMARKS:

*Large Type A - Board with 3 separate
irradiator licenses. 2⁶⁰Co units, 1 is teletherapy unit
used to irradiate cells. 4/7/19-00296-17 incorporates all
former irradiator licenses.*

2. Licensee Internal Audits

Lic Cond _____

Scope and frequency?

Management controls?

NOTES & REMARKS:

*Centrals include ^{Custodians} users authorized by the
RSC. They in turn designate users who must
get key and use permission from ^{keyed} Custodian*

3. Training and Instructions to Employees

Training program, scope and frequency, retraining? Lic Cond _____

Required tests administered; scores satisfactory?

Instructions to workers?

NOTES & REMARKS:

19.12

*All custodians & designates must attend
1 day minimum radiation awareness course
offered by M/H M.P. staff. course offered 1/8/82*

4. Radiation Protection Procedures

Operating & emergency procedures implemented? Lic Cond _____

Security?

NOTES & REMARKS:

20.207

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
5. <u>Materials, Facilities and Instruments</u>		_____
Authorized uses and quantities?	Lic Cond _____	
Restricted areas, posting requirements?	20.203	
Survey instruments & dosimeters; operable, properly calibrated?	Lic Cond _____	
Independent area radiation monitor?		
Survey meter used on entering HRA?		
NOTES & REMARKS:		
6. <u>Receipt and Transfer of Materials</u>		_____
Procedures implemented, adequate?	20.205, 71.51	
Transfer of byproduct material?	30.41	
Control of source material, SNM?	40.51, 40.64, 70.42, 70.51, 70.53, 70.54	
Records of receipt, transfer, storage, survey and monitoring?	30.51	
NOTES & REMARKS:		
<i>One unit is authorized by L/C to be moved during construction</i>		
7. <u>Control of High Radiation Area</u>		_____
Interlocks, tests, entry control?	20.203(c)(6) " 4, 1, 1	
Action if entry control device fails?		
Device to prevent source exposure with individual in chamber?		
Level control for liquid shield?		
Source exposure procedure?		
Control of portals (continuous irradiator)?		
NOTES & REMARKS:		

77710B - Irradiator

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
<u>8. Transportation</u>		
Management controls, audits?		
Selection of packaging?	49 CFR 173.393-5, 10 CFR 71	
Preparation of packages for shipment?	49 CFR 172, 173	
Filling, loading, closing, liquids?	49 CFR 172, 300	
Markings & labelling?	49 CFR 172.403, 402	
Monitoring?	49 CFR 173.393	
Shipping papers, loading & placarding of vehicles?	49 CFR 172.200	
Reports of incidents?		
Examination of packages?		
NOTES & REMARKS:		
<u>9. Personnel Protection- External</u>		
Personnel monitoring control; minimize exposures, control of accumulated dose?	20.101, 20.102, 20.202	
Surveys conducted, adequate?	20.201	
Records of monitoring, surveys, disposals?	20.401, Lic Cond _____	
Levels in unrestricted areas?	20.1, 20.105	
NOTES & REMARKS:		
<u>10. Personnel Protection - Internal</u>		
Airborne concentrations in restricted areas?	20.103	
Exposure of minors?	20.104	
Posting of airborne radioactivity areas?	20.203	
Survey, monitoring, bioassay requirements; records?	20.201, 20.401	
Leak tests of sealed sources?	Lic Cond _____	
NOTES & REMARKS:		

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
11. <u>Effluent Control, Waste Disposal</u>		_____
Release of effluents?	20.106	
Waste disposal, proper packaging for shipment?	20.301, 20.303, 20.304, 20.305	
Procedures, records?	20.401, Lic Cond _____	
NOTES & REMARKS:		
12. <u>Shipping, Shipping Incidents</u>		_____
Procedures for pickup, receipt, monitoring of packages?	20.205(b) & (c)	
Incidents, reports, corrective actions?	49 CFR 170-189	
NOTES & REMARKS:		
13. <u>Notifications and Reports</u>		_____
To individuals?	19.13	
Overexposures, excessive levels & concentrations, incidents?	20.403, 20.405	
Personnel exposures and monitoring, termination reports?	20.407, 20.408	
Theft or loss of licensed material?	20.402	
NOTES & REMARKS:		
14. <u>Posting of Notices</u>		_____
Part 20, license & documents, procedures, notice of violations?	19.11(a)	
NRC-37	19.11(c)	
NOTES & REMARKS:		

AREAS INSPECTED AND FINDINGS

Licensee: _____ License No: _____ Amendment No: _____

INSPECTION ITEM	CRITERIA	FINDING
15. <u>Environmental Monitoring Program</u>	Lic Cond _____	<u>N/A</u>
Implementation of program, scope and frequency as required?		
Records maintained, reviewed by management?		
NOTES & REMARKS:		
16. <u>Emergency Preparedness</u>	Lic Cond _____	<u>2</u>
Procedures available for incidents and accidents?		
Training for personnel; coordination with supporting groups and agencies? ✓		
NOTES & REMARKS:		
17. <u>Other License Conditions</u>		
NOTES & REMARKS:		
18. <u>Confirmatory Measurements</u>		
Licensee's surveys verified on sampling basis? 20.105, 20.201		
Analysis of pool water sample? <u>NA</u>		
NOTES & REMARKS:		
NRC Instrument: _____ Calibration Due Date: _____		
19. <u>Independent Inspection Effort</u>		
Observed irradiators & checked alarms and status when applicable. Visual inspection of Pu Be sources, and samples taken for RI analysis.		
NOTES & REMARKS:		

INSPECTION REPORT NUMBER _____

Page _____ of _____

APPENDIX A - DOCUMENTATION OF NONCOMPLIANCE

Licensee: _____

License No: _____

Reference	Basis for noncompliance
Report item _____	
10 CFR _____	
Lic Cond _____	
Type n/c _____	
Report item _____	
10 CFR _____	
Lic Cond _____	
Type n/c _____	
Report item _____	
10 CFR _____	
Lic Cond _____	
Type n/c _____	
Report item _____	
10 CFR _____	
Lic Cond _____	
Type n/c _____	
Report item _____	
10 CFR _____	
Lic Cond _____	
Type n/c _____	

INSPECTION REPORT NUMBER _____

Page _____ of _____

APPENDIX B - LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

Licensee: _____

License No: _____

Identification and summary of action taken	Status
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Report No: _____	Type n/c: _____	Describe: _____
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Action taken:	OPEN
	CLOSED

Report No: _____	Type n/c: _____	Describe: _____
------------------	-----------------	-----------------

Action taken:	OPEN
	CLOSED

Report No: _____	Type n/c: _____	Describe: _____
------------------	-----------------	-----------------

Action taken:	OPEN
	CLOSED

Report No: _____	Type n/c: _____	Describe: _____
------------------	-----------------	-----------------

Action taken:	OPEN
	CLOSED

Report No: _____	Type n/c: _____	Describe: _____
------------------	-----------------	-----------------

Action taken:	OPEN
	CLOSED

Report No: _____	Type n/c: _____	Describe: _____
------------------	-----------------	-----------------

Action taken:	OPEN
	CLOSED

10/79 - 3709 Bldg #5 Rm 23

1. Gamma Cell 40 - Self contained apparatus
3220 Ci
Dr. Haysky Dr. Galloway. List

2. Gamma 40 ¹³⁷Cs Bldg 10 B2 Lab. 56

Cobalt 60 - Survey: $\dot{\epsilon}$ source out 3 to 4 in / area
2 $\dot{\epsilon}$ " in .00 Mr/Hr

APPENDIX C - SUPPLEMENTARY INFORMATION

Licensee: _____ License No: _____

- ☐ Uncorrected/repeated noncompliance
- ☐ Unusual occurrence, conditions, etc
- ☐ Basis for change of Category or Priority

- ☐ Unresolved items
- ☒ Inspector's comments

Inspection included 3 Radiator Licenses, and
Plutonium Pacemaker Lic. and the Pub. services
included under the Type A Broad Lic. Management
control system seems good. Annual review of
users is pending audit.

Re. Pacemakers - report received from physician
annually accounting for material

70 Check their active licenses

Follow ups 19-00296-12, 20

1. Waste Storage in Halls
- Separate dry from wet - long from short lived
- Records maintenance

2. Authorized users -

3. ^Wighter Management contracts

4. Security violations

- Dosimetry Records

- Authorized Users - 800
Responsibility of ordered material

✓ Authorized Names + present users

SHIPPING DATA
PLUTONIUM NEUTRON SOURCE

MONSANTO RESEARCH CORPORATION
MOUND LABORATORY
MIAMISBURG, OHIO

MWO 6711-5

TO: National Institutes of Health
Isotopes Laboratory
Building 21
Order #218826
Bethesda 14, Maryland
Attention J. M. Brown

September 22, 1961
DATE OF SHIPMENT & CALIBRATION

VIA Railway Express

YOUR P.O. No. 218826

LICENSE No. SNM-279

SS ALLOTMENT QUOTA No. 7000/SNM-279

NEUTRON SOURCE No. M-477

WITHDRAWN FROM SBX-3101

1. TYPE OF SOURCE - PuBe

2. GRAM OF BE - 39.25

3. GRAM OF PU - 79.96

4. CONTAINER MATERIAL - Tantaluma and stainless steel

5. DIMENSIONS OF CONTAINER - INSIDE -
OUTSIDE -

1.38" o. d. x 3.38" high
10-32 thread

6. METHOD OF SEALING - WELDED

7. NEUTRON EMISSION - 8.36×10^6 N/SEC

8. TOLERANCE DISTANCE IN AIR FOR 8 HOURS - 43 INCHES
(BASED ON 30 N/SEC/CM²)

55

SHIPPING CONTAINER IS A PARAFFIN-FILLED 30 GALLON DRUM

SOURCE(S) IS IN A SLOT AT THE BOTTOM OF A PARAFFIN-FILLED TUBE WHICH MAY BE LIFTED AFTER REMOVING THE SEALED CLOSURE OF THE DRUM.

PRICE OF SOURCE

Recanned

PLUS COST OF SHIPPING CONTAINER

No Charge

TOTAL

REMARKS: Project

CC:

J. M. Brown

THE TITLE TO THE PLUTONIUM USED IN THIS SOURCE
REMAINS WITH THE ATOMIC ENERGY COMMISSION.

/lg

J. L. Richmond
J. L. Richmond

GROUP LEADER, SOURCES

Radiation Safety Branch
Division of Safety
National Institutes of Health

RJA
1/28/83

SUMMARY OF IRRADIATORS

NRC License No. 19-00296-12

10/B2B56 ORNL/NPI 1000 Ci Co-60

Names
Riesz *Custom Design*

NRC License No. 19-00296-17

36/B504	JLS 143-45	1155 Ci	Cs-137	McFarlin
5/B2-28	AECL Gammacell 40	4000 Ci	Cs-137	Asofsky
10/B2B51	AECL Gammacell 40	4000 Ci	Cs-137	Hinkle
10/B2B56	AECL Gammacell 40	4000 Ci	Cs-137	Uphoff
10A/1E31	Isomedix Gammator Model M	2400 Ci	Cs-137	Klein
37/B440	JLS Model 68	6600 Ci	Cs-137	Erikson
10/4B01	Isomedix Gammator Model M	2400 Ci	Cs-137	Shearer
41/C303	AECL Gammacell 40	4000 Ci	Cs-137	(Goldberg) (Stored in shipping crate - not in use)

NRC License No. 19-00296-20

10/B3B46 Eldorado 78 2000 Ci Co-60

Mitchell

4000 Ci

↓
1000 -

teletherapy

SERVICES PROVIDED BY THE RADIATION SAFETY BRANCH (496-5774)

- Assistance and Information on Procuring Radioactive Materials
- Radiation Safety Training
- Consultation on Radiation Safety, Facilities, Equipment
- Personnel Monitoring - Film Badges, Wrist Badges, Finger Badges
- Radiation Exposure Records
- Bioassay (urinalysis for radioactivity)
- Arrangements for Whole Body Counting, Thyroid Counting
- Receiving, Checking, Delivering Radioactive Material to User
- Shipping Radioactive Material from NIH
- Laboratory and Environmental Monitoring
- Monitoring X-ray Machines, Accelerators, Electron Microscopes
- Pick Up and Disposal of Radioactive Wastes
- Leak Testing of Sealed Radioactive Sources
- Radiation Monitoring Instruments - G.M. Counters
- Storage of Radioactive Materials Not Being Used
- Operation and Allocation of Space in Hot Lab, Bldg. 21
- Supervise Decontamination of Contaminated Areas
- Consultation on Radiation Emergencies, Spills, Contaminated Persons, Overexposures of Personnel
- Consultation on Radiation Shielding Requirements
- Loan of Shielding Materials - Lead, Lucite, Special Containers and Holders
- Calibration and Repair of Monitoring Instruments

TO REQUEST THESE SPECIAL SERVICES, CALL:

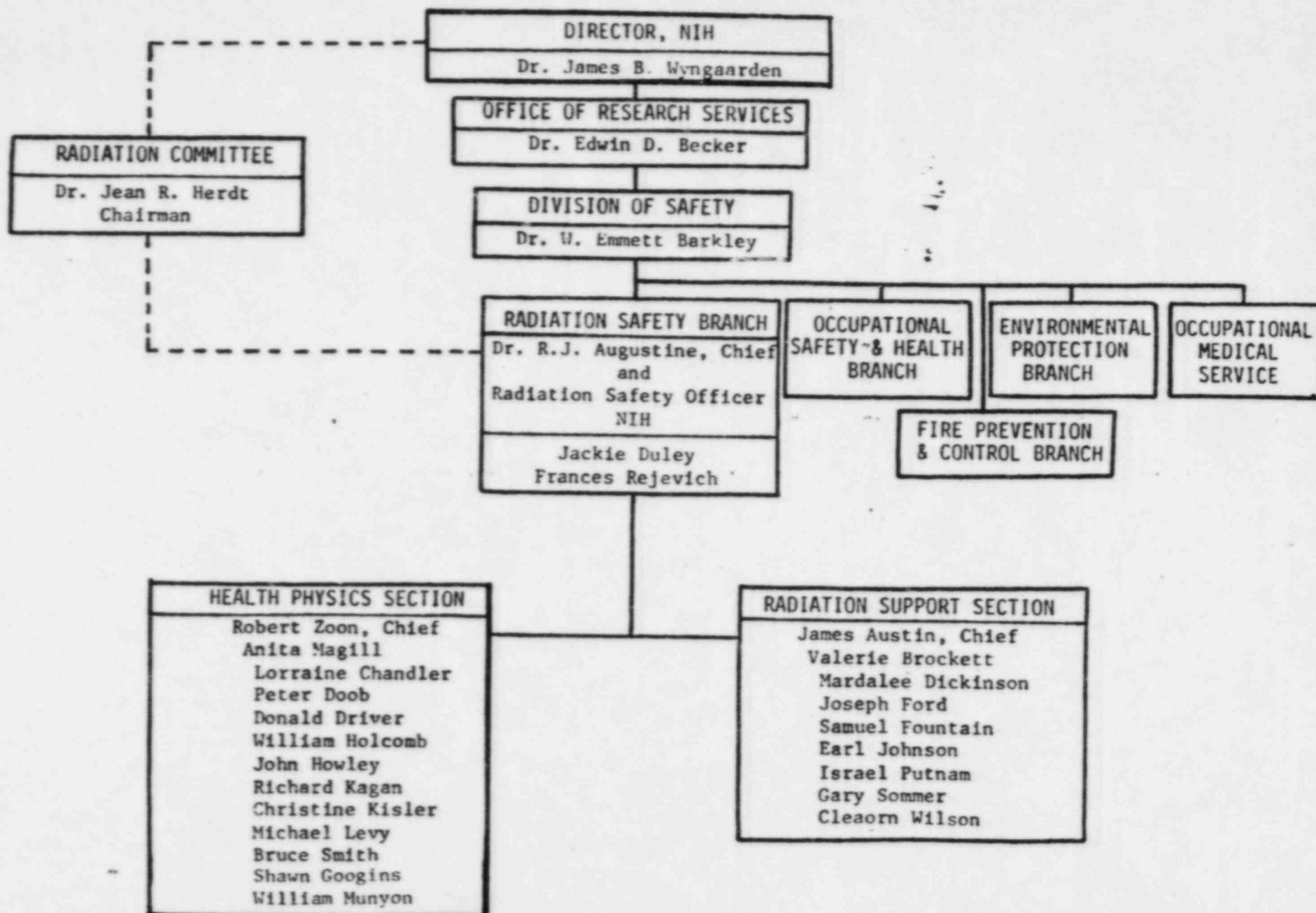
- Radiation Safety Officer..Dr. R.J. Augustine ..496-5774
- Film Badges.....Don Driver...496-9757
- Air Samplers for Iodination....Dick Kagan.....496-5774
- Bioassay (urine), Whole Body Count,
Thyroid Count.....Mike Levy.....496-5774
- Questions on Receiving or
Shipping Radioactive Material..Jim Austin....496-5774
- Hot Lab (Bldg. 21)...Make Appointment...496-5774
- Radioactive Waste Pick-up.....490-8100
- Special Radioactive Waste Problems...
.....Jim Austin.....496-5774
- Radiation Safety Training and
Requirements.....Training Office....496-2255
- Radiopharmacy Information (Nuclear
Medicine Dept.)....Ray Farkas.....496-1426

● RADIATION ACCIDENTS, EMERGENCIES, SPILLS, ETC.....496-5774 ●

(AFTER NORMAL DUTY HOURS, CALL NIH SPECIAL POLICE.....496-5685)
(Ask Police to contact Radiation Safety Staff on call)

Eff. 6/1/82

NATIONAL INSTITUTES OF HEALTH - RADIATION SAFETY ORGANIZATIONAL CHART





DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
National Institutes of Health

Memorandum

Date January 20, 1983
From C. L. McIntosh, M.D.
Subject Inventory of Plutonium Pacemakers
To Radiation Safety Officer, NIH

Following is the current inventory of nuclear pacemakers assigned to me:

<u>Model</u>	<u>Serial No.</u>	<u>Implant Date/Storage Location</u>
NU-5	138	12-10-73
C-101	015	11-05-76
C-101	025	02-23-76
C-101	111	09-03-76
C-101	198	06-08-77
C-101	231	06-13-77
C-101	236	09-12-77
C-101	257	09-14-77
C-101	259	02-21-78
C-101	305	09-12-78
C-101	1021	Building 10-A, Room 2E-68

C. L. McIntosh, M.D.
Radiation Safety Registration No. 3791