REGION I Form 198-
(October 88)

NDUSTRIAL/ACADEMIC

LICENSEE: DEPARTMENT OF THE ARMY - WALTER REED MEDICAL CENTER

REPORT NO. 90-001

ADDRESS: WASHINGTON DC 20307-5001

LICENSEE CONTACT: LT. COL MYERS

TELEPHONE NO.

LICENSE NUMBER	DOCKET NUMBER	CATEGORY	PRIORITY	PROGRAM CODE
08-01738-02	030-01317	61	1	02110
08-01738-03	030-06895	E	3	03520

INSPECTION DATE (S) Feb 6-7-8, 1990

TYPE OF INSPECTION

LOCATION(S) Washington DC
Forest Glen MD

/ / SPECIAL
[redacted] ROUTINE
/ / ANNOUNCED
[redacted] UNANNOUNCED
[redacted] DAYSHIFT
/ / BACKSHIFT

SUMMARY OF FINDINGS AND ACTION

/ / NO NONCOMPLIANCE, 591
/ / NO NONCOMPLIANCE, LETTER
/ / NONCOMPLIANCE, 591
[redacted] NONCOMPLIANCE, LETTER
[redacted] ACTION ON PREVIOUS NONCOMPLIANCE, APPENDIX B
[redacted] SUPPLEMENTAL INFORMATION, APPENDIX C
APPENDIX C
Includes Medical Field Notes

PERSONS CONTACTED (Name, Title)

* COL Peck, Acting Deputy Cmdr
* LTC Myers, Chief of Health Physics
* MAJ Terry Minton, Nuc Pharmacist
2LT Allen Anthony, HPO Tech Services RSO
LT Cummings, HPO Operations
Mr. Burton HPO Rad Materials Control
Ralph Kyle, Chief NMT
Dr. Anderson, Chief of Nuc Med
Dr. Cyrus Mazeed, Med Physicist
Jesse Martin, Dr. Frances Carr Metabolic Studies
David Drothler (blood irradiation)
SGTS. Olson, Simmons Moyes, Lewis
E. Richardson

* attended exit meeting

Inspector Signature, Date 2/4/90

Inspector Signature, Date

APPROVED 5/10/90
Signature, Date

2/59

RESULTS

1. ORGANIZATION — (C) NC

a. Describe the management structure. — (C) NC

CMDR, WRAMC

COL Peck — Acting Deputy Cmdr, Clinical Services → hospital

COL Johnson — Dep Cmdr, Administration → Health Physics Office

b. Describe the radiation protection organization. — (C) NC

HP Office, LTC Myers, Chief; Marsh, Deputy

- Operations — LT Cummings; SGT Olsen etc — perform surveys
- Technical Services — LT Anthony (RSO); Simmons, Moyer — rad lab, dosimetry / bioassay
- Rad. Material Control — Mr. Brunton; Lewis — receipt, inventory, waste disposal

provides service to all users of RAM

c. Individuals identified in the license as being responsible for the programs still hold these positions. — (C) NC

d. Radiation Safety Committee operates as required — (C) NC NA NI

1. meeting frequency: at least quarterly
2. records maintained — (y)/n/na/ni
3. records reviewed by inspector for period June 1988 to January 1990
4. required persons in attendance — (y)/n/na/ni

e. Management control programs conducted as required. — (C) NC NA NI

1. records maintained — (y)/n/na/ni
2. Describe scope, frequency, etc.

Comments

4 "Human Use" Groups

1) Nuclear Medicine Dept — Chief: Anderson, MD

MAJ Minton, Nuc Pharmacist, Chief NMT Ralph Kyle, MDs

10 NMTs, 3 students

2) Therapy — C. Marzod, Med Phys.

3) Metabolic Studies

4) Med Rsch

other: R&D at WRAIR, Ft. Detrick

RESULTS

2. SCOPE OF LICENSED ACTIVITIES — (C) NC

a. Describe the types of current activities. — (C) NC

Hospital : 1) Nuclear Med / RIA lab, iodine therapy
2) Brachytherapy (Co-137, Ir-192, I-125)
3) bone-mineral analysis
4) teaching/training of NMTs

R&D : WRAIR building and Forest Glen location : metabolism studies, radiation, radiotracers, some animal studies
Some medical research

b. Describe the current workload in terms of number of workers, quantities of radioactive material used each week/month/year, frequency of use, other appropriate information.

1. ~400 lab rooms; 700± rad workers across 80 user groups
2. 15-20 package of RAM delivered each day including RIA kits, nCi-mCi quantities CHIPS, and for Nuc Med delivery.
3. 20-30 radiations per year. Occasional use of microspheres
4. See attached Medical field notes for Hospital use

c. Describe any changes since the last inspection, and any which may be planned.

Considering having all RAM for Nuc Med delivered directly to Nuc Med

Comments

Planning to build new facility for HP Office, at site of former reactor building. This building currently used for waste handling. The new building would be placed behind this facility.

	RESULTS
3. TRAINING AND INSTRUCTIONS TO EMPLOYEES	(C) NC
a. Instruction to all persons working in a restricted area (19.12).	(C) NC
b. Additional required training for users and other specified workers.	(C) NC NA NI
1. approved training program	y/n/na/(ni)
2. training provided by HP Office	
3. users complete on-the-job training	y/n/na/(ni)
4. tests are given	
a. written	y/n/na/(ni)
b. oral	y/n/na/ni
c. practical	y/n/na/ni
d. records of tests maintained	y/n/na/ni
e. deficiencies noted	y/n/na/ni
5. test results reviewed by NRC inspector for period _____ to _____	y/n/na/(ni)
c. Periodic training is implemented as required.	(C) NC NA NI
1. records of retraining maintained	(y)/n/na/ni
2. Describe frequency and scope of periodic training	
d. Employees interviewed appeared familiar with safe handling practices and other requirements.	(C) NC NA NI

Comments

Workers interviewed appeared familiar with rad safety procedures

RCC minutes listed all training courses given each quarter (usually 6-12 covering nurses, ancillary, Nuclear, etc)

No review of training records for individual was performed.

	RESULTS
4. MATERIALS	C NC
a. Radioactive material as authorized by license.	C NC
1. type and quantity authorized	y/n
2. inventory records maintained	y/n/na/ni
3. inventory records reviewed for period June 1989 to December 1989	
b. Control of source material (Part 40) and special nuclear material (Part 70) as required. Only DU shielding and some uranyl compounds	C NC NA NI
1. transfers in accordance with 40.51/70.42,70.54	y/n/na/ni
2. records and inventory required by 40.61/70.51	y/n/na/ni
3. reports in accordance with 40.64/70.53, 70.54	y/n/na/ni

Comments

Blood irradiator ~~[illegible]~~ on 4th floor at hospital
1 Gammacell 220 and one Gammacell 40 in basement QUARR
1 Gammacell 220 and one Gammacell 40 at Ft. Detrick

Bone-mineral analyzer: Gd-153, Iodine and Am-241 sources

Brachy storage in first floor of hospital for Cs-137 needles, Iodine and/or indium seeds prior to return, and Sr-90 (2) eye applic

Inventory maintained
1) by auth. user, ~~[illegible]~~ Material added onto authorization on receipt, deleted only at 6-month inventory. No credit taken for decay
2) sealed source inventories maintained by HP office

No Au-198 on hand.

	RESULTS
5. FACILITIES MAINTAINED AS DESCRIBED IN APPLICATION	C NC
a. postings and labelings as required	C NC
1. 20.203(b) radiation area	y/n/na/ni
2. 20.203(d) airborne radiation area	y/n/na/ni
3. 20.203(e) use or storage areas posted with "Caution - Radioactive Material"	y/n/na/ni
4. 20.203(f) containers and devices properly labeled	y/n/na/ni
5. 19.11(a)(b) posting of documents	y/n/na/ni
6. 19.11(c) posting of NRC-3	y/n/na/ni
7. 20.203(c) high radiation areas	y/n/na/ni
b. Security of licensed material is maintained.	C NC
1. locked in device cabinet or room	y/n/na/ni
2. secured to prevent unauthorized removal from an unrestricted area	y/n/na/ni
3. devices and materials secured at field location	y/n/na/ni
c. High Radiation Area operated as required.	C NC NA NI
1. posted as required by 20.203(c)(1)	yes/no
2. interlocked as required by 20.203(c)(2)(i)	yes/no
3. entrance controlled in accordance with 20.203(c)(2)	yes/no
4. exit controlled in accordance with 20.203(c)(3)	yes/no
5. surveillance or locked to prevent unauthorized entry as required by 20.203(c)(4)	yes/no
6. visible and audible signals operate correctly to warn of the presence of radiation	yes/no
7. alarm tested at required intervals	yes/no
8. records of alarm system test maintained	yes/no
9. exposure devices and storage containers meet radiation level limits of 20.203	yes/no

Comments

b. Hallways in WRAIR beginning to be used for storing RAM refrigerators and freezers due to lack of space. Must have locks/chains for security of material

RESULTS

6. INSTRUMENTS, EQUIPMENT, AND DEVICES — C NC

a. calibrated and operable meters available and used properly. — C NC NA NI

1. number, type, and ranges (e.g. 2, ion chamber, 1R/hr; 3, GM, 10,000 cpm)

Number	Type	Range

3. calibrated by: RSO Inc
4. calibration method as authorized — y/n/na/ni
5. calibration interval annual as required — y/n/na/ni
6. Records reviewed by NRC inspector for the period _____ to _____

b. other special equipment (ventilation, hoods, shielding, etc) operable and available as described in license. Description: — C NC NA NI

iodination hoods - flow rates checked
Each hood has 3 samplers: 1) breathing zone
2) room air 3) stack to environment

Comments

Each lab had at least one operable survey meter, usually a pancake GM. All have current calibration stickers.

	RESULTS			
7. RECEIPT AND TRANSFER OF MATERIALS	C	NC	NA	NI
a. Procedures for picking up, receiving, and opening of packages performed as required by 20.205.	C	NC	NA	NI
1. written procedures available	y/n/na/ni			
2. procedures approved in application	y/n/na/ni			
3. survey of packages when received	y/n/na/ni			
4. 20.401 records of survey of packages	y/n/na/ni			
5. 20.401 records of receipt of packages	y/n/na/ni			
b. Licensed material transferred as required.	C	NC	NA	NI
1. 30.41 verification of recipient's license	y/n/na/ni			
2. 20.401, 30.51 records of transfer maintained	y/n/na/ni			
3. Licensee makes shipments of radioactive materials	yes/no			
a. delivered by common carrier	yes/no			
b. transported in licensee's own vehicle as a private carrier.	yes/no			

*IF ABOVE IS ANSWERED "YES", COMPLETE 7.A TRANSPORTATION

COMMENTS

licensee transports RAM packages from HP Office at Fort Allen (including Tc-99m generators) to the hospital and WRAIR in Washington D.C. And transports waste from D.C to Fort Allen.

Vehicle is placarded, all waste transported as "LSA".

7.A. TRANSPORTATION		RESULTS C	NC	NA	NI
1. Are authorized packages used	173.415-416	yes/no			
2. Types of packages used (for example, DOT-7A)	173.415				
3. Performance test records on file	173.416(a)	yes/no			NI
4. Licensee aware of 6/30/85 cutoff on use ( ) certified	173.416(b	yes/no			
5. NRC COC's on file	71.12(c)(1)	yes/no			
6. Registered with NRC as user	71.12(c)(3)	yes/no			
7. Documented NRC-approved Q/A program? NRC Q/A Approval number_____	71.12(b)	yes/no			
8. Special Form Material Performance test records available for each source design	173.476(a)	yes/no/na			
9. packages labeled as required	172.403 (a-f)	yes/no			
a. Excepted					
b. White I					
c. Yellow II					
d. Yellow III					
10. Surveys performed to select correct label category and compliance with radiation limits	175.475(i)	yes/no			
11. Packages marked as required with	172.300-310	yes/no			
a. shipping name		yes/no			
b. Spec No.					
c. Certificate of Compliance (COC) No. etc.					
12. Shipping papers are prepared for each shipment	172.200	yes/no			
13. Shipping papers contain required information	172.203(d)	yes/no			
14. For private carrier shipments:					
a. vehicles placarded as required	172.500,504	yes/no			
b. cargo blocked, braced, tied down in vehicle	177.842(d)	yes/no			NI
c. any incidents reported to DOT	171.15-16	yes/no			no incidents
15. Licensee carries shipping papers that are readily accessible when transporting radioactive material					

Comments

RESULTS

8. PERSONNEL MONITORING — C NC NA NI

a. Personnel dosimetry assigned and worn as required. — C NC NA NI

1. whole-body dosimeter used — y/n/na/ni
   a. _____ film X TLD
   b. exchange frequency: Monthly
   c. supplier Army - Lexington KY
   d. supplier NVLAP accredited 10 CFR 20.202 — y/n/na/ni
2. extremity dosimetry used — y/n/na/ni
3. workers observed wearing required dosimetry — y/n/na/ni

b. Personnel dosimetry reports maintained as required — C NC NA NI

1. records reviewed by management frequency: — y/n/na/ni
   on receipt ; quarterly at RCC meeting
2. NRC inspector reviewed personnel monitoring records from Dec 88 to Oct 89 — y/n/na/ni
   a. whole body ~~quarterly~~ annual dose: typical 0 max _____
   b. extremity ~~quarterly~~ annual dose: typical 0 max 2
3. Forms NRC-4, NRC-5 or equivalent records completed — y/n/na/ni
4. Termination and annual reports to individuals and NRC, as required — y/n/na/ni

c. Formal ALARA program is implemented — C NC NA NI

Comments

Operations Branch provides a list each week to Tech Service Branch of individuals who require training - Individual on contacted if they do not come in when tardy.

RESULTS

9. RADIATION AND CONTAMINATION SURVEYS	C NC
a. Radiation and Contamination surveys	C NC NA NI
1. radiation and contamination surveys recorded	y/n/na/ni
2. surveys performed at required frequency: uses: daily when used	y/n/na/ni
3. appropriate instruments used	y/n/na/ni
4. action limits observed, and post-docontamination surveys performed when necessary	y/n/na/ni
5. NRC inspector reviewed survey records for the period Jan 1989 to Jan 1990	Selected all records for specified labs:
6. maximum radiation levels in unrestricted area: <0.05 mR/h	
b. Airborne Radioactivity Surveys performed	C NC NA NI
1. Air sampling in restricted areas	y/n/na/ni
a. maximum concentration levels: 1E-11 uCi/ml I-125	I-131 (Nuc Med) max 1E-10 uCi/ml typ E-12 uCi/ml
b. typical concentration levels: <MDA 3E-14 uCi/ml	
2. bioassay procedures performed	y/n/na/ni
a. type(s) thyroid scan	
b. maximum results 5/89 35 nCi I-125. Individual use of isotopes eventually revoked 11/89	
c. typical results	
3. bioassay and air sampling records maintained as required	y/n/na/ni
4. Principal isotopes I-125 I-131	
c. Leak tests of sealed sources performed as required	C NC NA NI
1. performed by user and method approved	y/n/na/ni
2. tested at required interval: 6-mo except Co and Kr only (quarterly)	y/n/na/ni
3. records maintained	y/n/na/ni
4. records reviewed by NRC inspector for the period Jan 89 to Jan 90	

Comments

9.2. performed by HP office
- weekly: all labs w/ potential to exceed ALARA limits, e.g. iodination labs, Nuc Med
- monthly: all authorized use areas
- quarterly: selected common areas such as bathrooms, hallways, elevators, lunch rooms.

RESULTS

10. EFFLUENT CONTROL, WASTE DISPOSAL — C NC NA NI

a. Releases to the environment in accordance with requirements. — C NC NA NI

1. airborne releases are made — y/n/na/ni
   a. evaluations adequate — y/n/na/ni
   b. releases within limits (10 CFR 20.106) — y/n/na/ni
   c. typical concentrations _____
   d. principal isotopes released I-125 and I-131
2. liquid releases are made to sewer (sewer, unrestricted) — y/n/na/ni
   a. evaluations adequate — y/n/na/ni
   b. releases within limits (10 CFR 20.106, 10 CFR 20.303) — y/n/na/ni
   c. typical concentrations E-8 uCi/ml
   d. principal isotopes released ^3H, S-35
3. Records maintained — y/n/na/ni

b. Waste disposal in accordance with requirements — C NC NA NI

1. methods: sewer disposal
   transfer to broker
   storage-for-decay

2. records of waste transfer maintained — y/n/na/ni
3. surveys of waste containers and material in storage-for-decay performed — y/n/na/ni
4. obliteration of labels — y/n/na/ni

c. Burial of licensed material done in past — Yes/No

1. Location of past burials _____
2. types of materials buried _____
3. types of surveys of area, results:

d. 10 CFR 61 Requirements Reviewed — y/n/na/ni

Comments

Total 1989: 225 mCi H-3, 7 mCi C-14, 200 mCi other → 6814 l total volume of sample → sample conc: 3.3 E-5 uCi/ml, 1.0 E-6, 2.9 E-5 → 3.7 E9 ml → OK: 6.1 E-8 uCi/ml, 1.9 E-9, 5.4 E-7

Main Post sewer volume: 7E9 ml/day → 2.6 E12 ml/year
Fort Glen: 1 E7 ml/day → 3.7 E9

11. NOTIFICATIONS AND REPORTS	RESULTS C	NC	NA	NI

1. Licensee is in compliance with

   a. reports of thefts or losses (20.402) — y/n/na/ni
   b. reports of incidents (excessive releases, fires, or other catastrophes) (20.403) — y/n/na/ni

2. Licensee took appropriate action in response to the following Bulletins, Circulars, and Information Notices. — y/n/na/ni

   a. _____

   b. _____

   c. _____

Comments

No reportable incidents. Spill and ALARA reviews documented

One package missing from auth. user inventory records determined to have been used, not missing.

One radiation bad privileges revoked for repeated contamination incidents. One such contamination resulted in max thyroid burden of 35 nCi.

RESULTS

12. OTHER LICENSE CONDITIONS	C	NC	NA	NI

List any other license conditions which were reviewed during the inspection, and describe the results.

a. Item 9 Authorized Use — C NC

licensee needs to request a "Corrected Copy" as no use listed for Items AA and BB

b. L/C 12 B and C — C NC NI

Not reviewed

c. Lic No. 08-01738-03 — C NC

Condition 10: location for Blood Irradiator is at WRAMC. This was omitted from license, and in process of being amended

Comments

RESULTS

13. INDEPENDENT AND CONFIRMATORY MEASUREMENTS	C	NC	NA	NI

a. Type of Survey	Areas Surveyed	Results (indicate units)
1. Radiation level	Nuc Med-Pharmacy room	<0.1 mR/h
	- injection/prep room	<0.1 mR/h
	- camera rooms	<0.05 mR/h bkg
	- halls	<0.05 mR/h
	- techs office	<0.05 mR/h
2. ~~Wipe~~	Brachy Storage Area	<0.05 mR/h
	Blood Irradiator - contact	0.15 mR/h
	- room	bkg
	Labs: 4th floor (Corr)	<0.05 mR/h
3. ~~Sample (describe)~~	WRAIR: lab. labs	<0.05 mR/h
	halls, refrigs etc	<0.05 mR/h
	irradiator room - contact (40)	<0.1 mR/h
	- contact (220)	<0.2 mR/h
	Waste Bldg - storage for long area bkg →	5 mR/h
	- compactor	<0.1 mR/h

4. Attach any sample analysis data from Region I laboratory

- Sealed Source Storage bkg → 5 mR/h
Calibration Source Storage Bldg - ins. in <0.05 mR/h
- outside <0.05 mR/h
- LSA drum max 0.5 mR/h
- under freezer van <0.05 mR/h

b. Survey Instruments Used

1. Type	a.	Ludlum 34C	b.	
2. NRC #	a.	09464	b.	
3. last calibration date	a.		b.	

Comments

1. ORGANIZATION

a. Organizational structure meets license requirements. (X) Yes ( ) No [L/C]
Remarks.

b. Use supervised by authorized individuals. ( ) Yes ( ) No [35.22(b)(2)]
Remarks. Not inspected

c. Radiation Safety Committee meets at quarterly intervals.
(X) Yes ( ) No

(1) Membership in accordance with 35.22(a)(1)] (X) Yes ( ) No
Remarks.

(2) Record of Committee meetings. (X) Yes ( ) No [35.22(a)(4)]
Remarks.

(3) Consultants. ( ) Yes (X) No
Remarks.

e. Licensee uses the services of a visiting authorized user. Not inspected
( ) Yes ( ) No [35.27(a)]

(1) Licensee has a copy of visiting authorized user license.
( ) Yes ( ) No [35.27(a)(2)]

(2) License has records (maintained for 2 years) of visiting authorized users last visit. ( ) Yes ( ) No [35.37(c)]

f. License utilizes mobile nuclear medicine services.
( ) Yes (X) No [35.29]

g. Licensee delegates RSO sufficient authority, organizational freedom, and management prerogative. (X) Yes ( ) No

h. Appropriate review by Committee in accordance with 35.22(b).
(X) Yes ( ) No

2. INSPECTION HISTORY

Violations or deviations noted during last inspection conducted on ~~June~~ May 1988
(X) Yes ( ) No.

Response letter dated July 11, 1988
(See Appendix B for details)

3. SCOPE OF PROGRAM

Briefly list medical procedures and their frequency.

bone scans - daily
iodine therapy: hospitalization req'd ~ 15 per year
iodine - other 2-3 per week
Xe-133 - ~5 per month. No Tc-99m aerosol
brachy therapy - Cs-137, occ. use of I-125 seeds or Ir-192 seeds
bone mineral analyzer

4. INTERNAL AUDITS OR INSPECTIONS

a. Required by license condition. ( ) Yes (x) No ( ) N/A

b. Investigations or inspections conducted. (X) Yes ( ) No
[35.21(a) and (b)(2)]
Remarks.

c. Records maintained. (X) Yes ( ) No [35.21(b)(2)(xi)]
Remarks.

5. TRAINING, RETRAINING, AND INSTRUCTION TO WORKERS

a. License referenced training program.

(1) Training program implemented. (X) Yes ( ) No
Remarks.

(2) Retraining program implemented. (X) Yes ( ) No
Remarks.

5. (cont'd)

b. Instruction to workers in accordance with 10 CFR 19.12.
(X) Yes ( ) No
Remarks.

*c. Describe the QA program to mitigate therapeutic misadministrations.

(1) Have secondary checks of the dose calculations been done? Not inspected

( ) Yes ( ) No

(2) Do the second party checks of the dose calculations provide assurance that the final treatment plan will provide the dose prescribed on the patient chart? ( ) Yes ( ) No

(3) Do technologists consult with the doctor if the prescription or other orders are unclear? ( ) Yes ( ) No
Remarks.

d. Followup on therapy or serious diagnostic misadministrations None occurred

(1) 10 CFR 35.43 properly implemented? ( ) Yes ( ) No

(2) Was proper medical care given for the patient pursuant to the NRC medical consultant recommendations? ( ) Yes ( ) No

(3) Were appropriate actions implemented to prevent recurrence?
( ) Yes ( ) No

(4) Were the technologist and dosimetrist made aware of these actions?
( ) Yes (No)

(5) Do the licensee's QA/QC procedures address these actions to prevent recurrence? ( ) Yes ( ) No
Remarks.

However, two misadministrations occurred using non-NRC regulated sources/devices. Investigations were performed and reported as required.

6. RADIOLOGICAL PROTECTION PROCEDURES

a. Radiation Safety program changes reviewed. (Exception to changes without license amendment may be found in 35.13 and 35.606.)
(X) Yes ( ) No

*Inspect when QA rule becomes final.

6. (cont'd)

b. Records of changes in procedures reviewed. (X) Yes ( ) No [35.31(b)]
Remarks.

c. Radioactive materials used in accordance with current procedures.
(X) Yes ( ) No [35.21(b)(2)]
Remarks.

(1) Describe individuals understanding of current procedures.

Very good.

(2) Examples of key procedures:
* (a) ordering and accepting packages of RAM
(b) general rules for safe use of RAM ✓
(c) emergency procedures ✓
* (d) survey procedures ✓
(e) handling of volatile RAM (e.g., Xe-133, I-131) ✓
(f) precautions for use of RAM (sealed and unsealed) for therapy ✓
(g) emergency procedures posted? yes
(h) do licensee personnel understand emergency procedures? yes
(i) safety procedures for patient therapy in accordance with 35.315 and 35.415 yes

* Procedures performed by HP Office employees, not Units

7. MATERIALS, FACILITIES AND INSTRUMENTS

a. Facilities as described in license application. (X) Yes ( ) No
Remarks.

b. Isotope, chemical form, quantity and use as authorized.
(X) Yes ( ) No [L/C]
Remarks.

c. Syringes containing radioactive material properly labeled and shielded unless contraindicated. (X) Yes ( ) No [35.60(a)(b)(c)]

d. Vials containing radioactive material properly labeled and shielded.
(X) Yes ( ) No [35.61(a)(b)]

7. (cont'd)

e. Tests required by regulations.

(1) molybdenum-99 breakthrough. (X) Yes ( ) No [35.204(b)]
(2) performed as required. (X) Yes ( ) No [35.204(a)]
(3) records maintained. (X) Yes ( ) No [35.204(c)]
Remarks.

* (4) Leak tests. (X) Yes ( ) No * Performed by HP Office techs.

(5) Leak tests performed as required. (X) Yes ( ) No [35.59(b)]
Dates and Remarks.

* f. Inventory of sealed sources.

(1) Inventory of Group VI sources. (X) Yes ( ) No [35.59(g)]
Dates:

(2) Inventory of calibration sources. (X) Yes ( ) No [35.59(g)]
Dates:

g. Areas for storage and use of radioactive materials.

(1) Method used to prevent an unauthorized individual locks

(2) Radioactive material secured to prevent unauthorized removal from an unrestricted area. (X) Yes ( ) No [20.207]

Remarks.

(3) Area wipe tested? (X) Yes ( ) No
Remarks.

h. Instrumentation.

(1) Operable survey instruments are as described or equivalent to those described in license application. (X) Yes ( ) No
[35.120, 220, 320, 420]
Remarks.

7. (cont'd)

(2) Capability of radiation survey instruments is adequate for program.
(X) Yes ( ) No
Remarks.

(3) Calibration of survey instruments required. (X) Yes ( ) No

(a) Performed as required. (X) Yes ( ) No [35.50]
Dates and Remarks.

(4) Records of calibration maintained for 2 years. [35.50(e)]
(X) Yes ( ) No Not reviewed. All meters observed had current calibration stickers

8. RECEIPT AND TRANSFER OF RADIOACTIVE MATERIAL

Receipt of incoming packages during "off-duty" hours by whom? HP Office

(a) Where stored? Security? [L/C] locked bunker area

(b) Survey of incoming packages. (X) Yes ( ) No [20.205(b)(1)]
Remarks.

(1) Record of survey. (X) Yes ( ) No [20.401(b)]
Remarks.

(c) Procedure for opening packages. (X) Yes ( ) No [20.205(d)]
Remarks.

(d) Returned licensed material transferred in accordance with 10 CFR 30.41.
(X) Yes ( ) No
Remarks.

8. (cont'd)

(e) Records of receipt and transfer maintained. (X) Yes ( ) No
[30.51]
Remarks.

9. PERSONNEL RADIATION PROTECTION - EXTERNAL
(Obtain information regarding whole body and extremity monitors)

a. Film or TLD badge supplier Army Lexington KY Frequency monthly

b. Reports reviewed by RSO? yes Others Tech Services? NCC
Frequency on receipt
(Are badges assigned to personnel as per licensee's correspondence with NRC?)

c. NRC inspector reviewed personnel monitoring records for period Dec 1988 to October 1989

d. NRC forms or equivalent.

(1) NRC-4: (X) Yes ( ) No Complete: ( ) Yes ( ) No
Necessary ( ) Yes ( ) No

(2) NRC-5: (X) Yes ( ) No Complete: ( ) Yes ( ) No
[20.401(a)]
Remarks.

e. Maximum ~~quarterly~~ annual whole-body exposure. 155 mrem typical M

f. Maximum ~~quarterly~~ annual extremity exposure. ~~1.5~~ 2.8 rem typical M

g. Licensee has implemented an ALARA program. (X) Yes ( ) No
[35.50] [see Procedure No. 83822, "Radiation Protection]
Remarks.

h. Radiation survey of unrestricted areas. (X) Yes ( ) No
(20.201(b) to show compliance with 20.105(b)) [35.315(a)(4)];
[35.415(a)(4)]
Remarks.

9. (cont'd)

(1) Record of surveys maintained. (X) Yes ( ) No
[20.401(b) to show compliance with 20.105(b)]
Remarks.

i. Radiation survey of storage and use areas:

(1) Quarterly survey brachytherapy source storage. ( ) Yes ( ) No Not inspected
[35.59(h)]

(2) Temporary implant patient release survey. (X) Yes ( ) No
[35.404(a)]

(3) Radiopharmaceutical and permanent implant patient release survey.
(X) Yes ( ) No [35.75]

(4) Radiopharmaceutical therapy room contamination survey.
(X) Yes ( ) No [35.315(a)(5) and (7)]

(5) Patient survey upon implant. (X) Yes ( ) No [35.406(c)]

(6) Radiopharmaceutical storage and laboratory use areas.
(X) Yes ( ) No [35.70]
Remarks.

j. Record of survey maintained. (X) Yes ( ) No [35.70(h)]
Remarks.

k. Inventory of brachytherapy sources after use. (X) Yes ( ) No
[35.406]
Remarks.

l. Records maintained. (X) Yes ( ) No [35.59(g)]; [35.406]

m. Dose calibrator calibration and checks performed as follows:
Constancy (X) Yes ( ) No Accuracy (X) Yes ( ) No
Linearity (X) Yes ( ) No Geometric dependence (X) Yes ( ) No
[35.50]

10. PERSONNEL RADIATION PROTECTION - INTERNAL

a. Potential for exposure of individuals to airborne radioactive material exists.
(X) Yes ( ) No
Remarks.
All iodine storage/use hoods monitored using charcoal filter system, pumping at 10 liters per minute. Three samples

b. Monitoring for airborne radioactivity conducted. (X) Yes ( ) No
[20.201(b) to show compliance with all sections of 20.103 and 35.90]
Remarks.
are tested in each hood: 1) breathing zone 2) room air and 3) effluent to hood vent

(1) Records of monitoring maintained. (X) Yes ( ) No
[20.401(b) or L/C]
Remarks.

c. Bioassay program implemented as described in correspondence with NRC.
(X) Yes ( ) No [35.315(a)(8)]

d. Control of airborne radioactivity in accordance with 35.205.
(X) Yes ( ) No

11. RADIOACTIVE EFFLUENT AND WASTE DISPOSAL

a. Radioactivity in effluents to unrestricted areas. (X) Yes ( ) No

b. Release in accordance with regulatory limits. (X) Yes ( ) No
[20.106(a)]
Remarks.
See above.

c. State solid waste disposal method.
d. State liquid waste disposal method.

- storage for decay
- return to vendor (generator)
- waste broker

11. (cont'd)

e. Disposal of solid and liquid waste in accordance with regulatory requirements (decay in storage). (X) Yes ( ) No [35.92(a)]
Remarks.

(1) Records of disposal. (X) Yes ( ) No [35.92(b)]
Remarks.

f. Survey of waste prior to disposal. (X) Yes ( ) No [20.201(b) to show compliance with 20.301 - 35.92(a)(2)]
Remarks.

(1) Records of survey maintained. (X) Yes ( ) No [20.401(b)]
Remarks.

12. NOTIFICATIONS AND REPORTS

a. Licensee in compliance with 10 CFR 19.13 (reports to individuals).
(X) Yes ( ) No [19.13]
Remarks.

b. Licensee in compliance with 10 CFR 20.405 (overexposures).
(X) Yes ( ) No [20.405(a)]
Remarks.

None. ALARA reviews conducted and reported.

c. Licensee in compliance with 10 CFR 20.403 (incidents).
(X) Yes ( ) No [20.403]
Remarks.

No "report req'd" incidents. Some minor spills, occasional individual exceeding ALARA I level

12. (cont'd)

d. Licensee in compliance with 10 CFR 20.402 (theft or loss).
(X) Yes ( ) No [20.402(a) or (b)]
Remarks.
None.

e. Licensee in compliance with reporting therapeutic misadministrations and taking corrective action. (X) Yes ( ) No [35.33(a)(b)(d)]
Remarks.
None.

f. License in compliance with reporting diagnostic misadministrations and taking corrective action as needed under conditions set forth in 10 CFR 35.33(c).
(X) Yes ( ) No
Remarks.
None using NRC-regulated material.
One non-NRC radiopharmaceutical therapy misadministration
one accelerator therapeutic misadministration

13. POSTING OF NOTICES

Notices to workers posted. (X) Yes ( ) No [19.11(a), (b), or (c)]
Remarks.

14. CONFIRMATORY MEASUREMENTS

a. Measurements made by inspector. (X) Yes ( ) No

b. Survey instrument and probe Ludlum 14C
NRC Serial No. 009664

c. Describe type and results of measurements and compare with licensee's measurements. Good agreement. See below

15. INDEPENDENT MEASUREMENTS

a. Measurements made by inspector. (X) Yes ( ) No

b. Survey instrument See above
NRC Serial No. _____

c. Describe type and results of measurements.
Rad waste, normal trash, unrestricted area such as hallways, offices. All OK.
See p14 of R&D field notes.

16. POSTING AND LABELING

Posting and labeling in accordance with 10 CFR 20.203.
(X) Yes ( ) No [20.203]
Remarks.

17. LICENSE CONDITIONS

a. All license conditions reviewed during inspection. (X) Yes ( ) No

b. Activities were conducted in accordance with license conditions, except as noted elsewhere in this report. (X) Yes ( ) No
Remarks:

18. BULLETINS AND INFORMATION NOTICES

a. Bulletins and Information Notices issued during current year.
List:

NI

b. Bulletins and Information Notices received by licensee. ( ) Yes ( ) No
Remarks.

NI

c. Licensee took appropriate action in response to Bulletins and Information Notices. ( ) Yes ( ) No
Remarks.

NI

19. TRANSPORTATION (10 CFR 71.5a and 49 CFR 171-178) See other field notes.

	Yes	Violation?
a. License makes shipments of RAM? If "Yes", complete the following items.	(X)	( )

b. Such shipments consisted of:
( ) radwaste
( ) sources/products
( ) other _____

APPENDIX A - DOCUMENTATION OF NONCOMPLIANCE

Requirement	Basis for noncompliance
1. 10 CFR 20. Lic Cond _____	Refrigerator in unrestricted hallways of WRAIR not locked.
2. 10 CFR _____ Lic Cond _____	
3. 10 CFR _____ Lic Cond _____	
4. 10 CFR _____ Lic Cond _____	
5. 10 CFR _____ Lic Cond _____	
6. 10 CFR _____ Lic Cond _____	

APPENDIX B - LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

Identification and summary of action taken	Status
Report No: 88-001 Severity Level IV	
A. Describe previous violation: An individual who had performed iodinations did not have thyroid ~~[illegible]~~ assay performed	
Corrective Action taken: Aggressive program to ID individuals who perform iodinations. Operations Branch maintains list of such individuals and each week provides names of those who have done iodination that week. Tech Services calls the individuals in for thyroid assay if they do not come in voluntarily. Records of assays are maintained. Names of individuals who had performed iodinations or iodine therapies were selected at random for several dates. Records of thyroid assay were available for all ~~selected~~ individuals	OPEN CLOSED
~~Report No.:~~ ~~Severity Level~~	
~~Describe previous violation:~~	
~~Corrective Action taken:~~	OPEN CLOSED

APPENDIX B (continued)

Identification and summary of action taken	Status

B

Report No: 88-001 Severity Level V

Describe previous violation: Records & package monitoring not maintained.

Corrective action taken: OPEN

Record now maintained. Records reviewed for 1989

CLOSED

Report No: _____ Severity Level _____

Describe previous violation:

Corrective action taken: OPEN

CLOSED

Report No: _____ Severity Level _____

Describe previous violation:

Corrective action taken: OPEN

CLOSED

APPENDIX C - SUPPLEMENTARY INFORMATION

( ) Unusual occurrence, conditions, etc. (X) Unresolved items

( ) Description of attachments to field notes (X) Inspector's comments

No review of the following areas was performed:

1) training records for individuals
2) instrument calibration records
3) Qualifications / KCC approval of authorized users for medical procedures
4) Xe-133 use / procedures