

SAFETY INSPECTION

1. LICENSEE

Oral Roberts University
7777 South Lewis Avenue
Tulsa, OK 74171

2. REGIONAL OFFICE

U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012

3. DOCKET NUMBER(S)

30 - 14781

4. LICENSE NUMBER(S)

35 - 18282 - 01

5. DATE OF INSPECTION

6/21/84

Licensee:

The inspection was an examination of the activities conducted under your license as they relate to radiation safety and to compliance with the Nuclear Regulatory Commission's (NRC) rules and regulations and the conditions of your license. The inspection consisted of selective examinations of procedures and representative records, interviews, with personnel, and observations by the inspector. The findings as a result of this inspection are as follows:

- ☒ 1. Within the scope of this inspection, no violations were observed.
- ☒ 2. The inspector also verified the steps you have taken to correct the violations identified during the last inspection. We have no further questions on those actions at this time.
- ☐ 3. During this inspection certain of your activities, as checked below, were in violation of NRC requirements.
THIS IS A NOTICE OF VIOLATION which is required to be posted in accordance with 10 CFR 19.11.
- ☐ A. _____ was not properly posted to indicate the presence of a _____, 10 CFR 20.203(b), (c), (d), (e) or 34.42.
- ☐ B. Containers located in _____ were not properly labeled to indicate the presence of radioactive material. 10 CFR 20.203(f)(1), or (f)(2).
- ☐ C. _____ of sealed sources were not performed at the proper frequencies. 10 CFR _____ License Condition Number _____.
- ☐ D. Records of _____ were not properly maintained. 10 CFR _____ or License Condition Number _____.
- ☐ E. Documents were not properly posted or otherwise made available. 10 CFR 19.11.
- ☐ F. Reports or notifications of _____ were not made in accordance with 10 CFR _____ or License Condition Number _____.
- ☐ H. _____
- ☐ I. _____
- ☐ J. _____
- ☐ K. _____

I hereby state that within 30 days the actions described by me to the inspector will be taken to correct the violations identified in the items checked above. This statement of corrective actions is made in accordance with the requirements of 10 CFR 2.201. No further response will be submitted unless required by the NRC.

850727017B 850624
PDR FOIA
HARGROVE85-341 PDR

SIGNATURE - LICENSEE

DATE

SIGNATURE - NRC INSPECTOR

DATE

OK

6/21/84

REGION IV
TECHNICAL PROGRAMS BRANCH
DRAFT INSPECTION REPORT

Licensee: Oral Roberts University Report: 8401
7777 South Lewis Avenue License: 35-18282-01
Tulsa, OK 74171 Docket: 30-18282-01
Category/Priority: G1-2
Inspection At: 7777 South Lewis & 3181 South Lewis Inspection Dates: 6/20-21/84
Licensee Contact: _____ Telephone No: 918-493-8016
Previous Inspection Dates: 3/17-19/82 Previous Findings: 2 violations

Type Inspection:

- ☒ Routine
☒ Unannounced
☐ Initial
☐ Special

Inspection Procedures:

- ☒ 30703B Management Meeting
☐ 30800B Initial
☒ 79710B Program Requirements
☒ 86740B Transportation
☒ 92702B Noncompliance Followup
☒ 92706B Independent Effort
☐
☐

Persons Contacted

David Anderson, Clinical RSO Dann Fleetwood, NM
Delonda Pruitt, Admin. RSO
Roger Hartman, Admin. RSO

Inspection Findings

- ☒ 591 - No Violations
☐ 591 - Violations
☐ Regional Office Letter
☐ Appendix A - Violations (attached)
☒ Appendix B - Action on previous violations (attached)
☐ Appendix C - Inspector comments/supplemental information (attached)

Direct Inspection Effort: 10 Hrs.

Next Inspection Date: 12/86 ☐ Normal ☐ Advanced ☒ Extended

Inspector: MX Cain

Approved: [Signature]

Checklist for City of Faith only.

See separate list for ORU R&D program.

78710B-Medical
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INSPECTION CRITERIA

Yes N/A Vio.

1. Organization

- | | | | |
|--|-----|-----|-----|
| a. Management Organization | (✓) | () | () |
| b. Proper use location [LC 1, 2, & 10] | (✓) | () | () |
| c. Proper users? [LC 12] | (✓) | () | () |

Notes/Remarks: 7 users have been authorized under the clinical license segment. All but one of those were listed on 35-19899-01 (City of Faith). The one not previously listed has been approved by the Committee for in vitro research including a diabetes project and RIA lab.

2. Posting, Facilities, Storage of Materials

- | | | | |
|---|-----|-----|-----|
| a. Posting of notices? [19.11, 30.7(e)] | (✓) | () | () |
| b. Use areas properly posted? [20.203, 20.204] | (✓) | () | () |
| c. Facilities as described in application?
[LC <u>22</u>] | (✓) | () | () |
| d. Material secured adequately? [20.207]] | (✓) | () | () |

Notes/Remarks:

3. Independent Measurements

- | | | | |
|---|-----|-----|-----|
| a. Unrestricted areas below limits? [20.205] | (✓) | () | () |
| b. Proper posting of restricted areas? [20.203] | (✓) | () | () |
| c. Other measurements: | | | |

Notes/Remarks:

INSPECTION CRITERIA		Yes	N/A	Vio.
4.	<u>Surveys</u> ✓			
a.	Daily surveys performed? [LC <u>22</u>]	(✓)	()	()
b.	Weekly survey of labs and storage areas [LC <u>22</u>]	(✓)	()	()
	(1) exposure rates measured?	(✓)	()	()
	(2) wipe surveys performed?	(✓)	()	()
c.	Records maintained and contain required data?	(✓)	()	()
d.	Areas decontaminated if $> 200\text{dpm}/100\text{ CM}^2$?	(✓)	()	()
e.	Package surveys: [20.205, LC <u>22</u>]			
	(1) exposure rates measured?	(✓)	()	()
	(2) wipe surveys performed? <i>unnecessary per 20.205</i>	(✓)	()	()
	(2) records maintained? [20.401b, LC <u>22</u>]	(✓)	()	()
f.	Other surveys:	(✓)	()	()
	<i>documented periodic audit surveys by RSO</i>			

Notes/Remarks:

5. Use of Materials in Humans and In-vitro

a.	Diagnostic materials used (Groups I, II, III)	(✓)	()	()
	(1) Mo-99 Generator Size: <u>N/A</u> Frequency: <u>N/A</u>			
	(2) Tc-99m unit doses: (✓) yes () no			
	(3) Mo-99 breakthrough tests performed?	()	(✓)	()
	[35.14(b)(4)]			
	(i) all administrations less than 1mCi/MC or 5uCi per dose?	()	(✓)	()
	(ii) records maintained?	()	(✓)	()
	(4) Other diagnostic materials used:			
	<i>unit doses obtained from Syner</i>			
b.	Therapy materials used (Group IV):	(✓)	()	()
	<i>I-131 rarely</i>			
c.	Therapy materials used (Group V):	(✓)	()	()
	<i>I-131 rarely</i>			
	(1) Patients hospitalized as required? [LC <u>22</u>]	(✓)	()	()

INSPECTION CRITERIA	Yes	N/A	Vio.
(2) Radiation safety and contamination controls as required? [20.105(b), 20.203, LC <u>22</u>]	(✓)	()	()
(3) Nursing staff, properly instructed?	(✓)	()	()
d. Therapy materials used? (Group VI) <u>I-125, Cs-137, Sr-90, Ir-192</u>	(✓)	()	()
(1) Patients hospitalized as required? [LC <u>22</u>]	(✓)	()	()
(2) Radiation safety controls as required? [20.105(b), 20.203, LC <u>22</u>] observed patient being hospitalized w/ implants	(✓)	()	()
(3) Survey of patient and room after source removal? [LC <u>22</u>]	(✓)	()	()
e. In-vitro uses as required? [35.14c] <u>ok - very clean, organized lab</u>	(✓)	()	()
f. Materials and use as authorized? [LC 6-9]	(✓)	()	()

Notes/Remarks:

6. Receipt and Transfer of Material

a. Records of receipt maintained? [30.51(a)]	(✓)	()	()
b. Receipt of materials from authorized distributors? [34.14(b)(1)]	(✓)	()	()
c. Transfer of material proper? [30.41]	()	(✓)	()
d. Records of transfers maintained? [30.51(a)]	()	(✓)	()

Notes/Remarks:

7. Personnel Dosimetry

a. External dosimeters:	(✓)	()	()
(1) Body type: (✓) Film () TLD			
(2) Finger rings type: () Film (✓) TLD			

INSPECTION CRITERIA

Yes

N/A

Vio.

b. Exposures:

(1) Typical: WB 200 mrem/y Max WB 1730 Jan 1983 (may include x-ray exp.)
 (2) Typical: Hand minim Max hand 710 mrem YTD '84

c. All exposures within limits? [20.101]

(✓) () ()

d. Forms NRC-5 maintained? [20.401(a)]

(✓) () ()

e. Exposures to minors limited? [20.104]

() (✓) ()

f. Bioassays performed? [LC]

() (✓) ()

Notes/Remarks:

8. Waste Disposal

a. Methods:

(1) Hold for decay?

(✓) () ()

(2) Return generator to supplier?

(✓) () ()

(3) Other calculations performed by licensee for sewer

(✓) () ()

b. Records of disposals maintained? [30.51(a)] disposal

(✓) () ()

c. Records of disposal surveys? [20.401(b)]

() () ()

Notes/Remarks: Waste broker: ADCO Services, Inc., Tinley Park, IL. (Atomic Disposal Co.)
 Licensee found to comply w/ 20.311 & 10 CFR 61.

9. Calibration of Dose Calibratora. Daily constancy check performed [LC 22]

(✓) () ()

(1) proper type sources used?

(✓) () ()

(2) proper procedure/settings?

(✓) () ()

(3) records/graphs maintained?

(✓) () ()

b. Quarterly linearity tests performed?

(✓) () ()

(1) proper procedures?

(✓) () ()

(2) records/graphs maintained?

(✓) () ()

c. Annual accuracy tests performed?

(✓) () ()

(1) proper sources used?

(✓) () ()

Types: Cs-137, Co-57, Ba-133

(2) proper procedure/settings?

(✓) () ()

(3) records maintained?

(✓) () ()

d. Geometrical variation tests performed?

(✓) () ()

e. Do tests verify proper operation?

(✓) () ()

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
10. <u>Survey Instruments</u> ✓			
a. Equipment as required? [LC <u>22</u>]	(✓)	()	()
b. Equipment operable?	(✓)	()	()
c. Calibrated at the proper frequency?	(✓)	()	()
d. Calibration procedures adequate?	(✓)	()	()
e. Calibration records maintained?	(✓)	()	()

see R&D checklist

Notes/Remarks:

11. <u>Leak Tests of Sources</u> ✓			
a. Sealed sources tested as required? [35.14(b)(5), .14(6)(1)(i)]	(✓)	()	()
(1) records maintained	(✓)	()	()
(2) proper detection limits and units?	(✓)	()	()
(3) leakage properly reported?	(✓)	()	()
b. Quarterly inventory of sealed sources?	(✓)	()	()
(1) records of inventory maintained?	(✓)	()	()
c. Sources authorized by license/regs?	(✓)	()	()
d. Sources requiring leak tests:			
<u>Qs-137, 266 mCi</u>			

Notes/Remarks:

12. <u>Training</u> ✓			
a. NMT's properly trained and qualified? [LC <u>22</u>]	(✓)	()	()
b. Inservice training program adequate? [19.12]	(✓)	()	()
c. Instruction to female employees? [Reg. G.8.13]	(✓)	()	()
d. Training for Mo-99 breakthrough? [35.14(b)(4)(ii) LC _____]	()	(✓)	()
e. Records of training maintained? [LC <u>22</u>]	(✓)	()	()

Workers sign statement describing training received.

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
13. <u>Procedures</u> ✓			
a. Diagnostic administrations and safety?	(✓)	()	()
b. Therapy administrations and safety?	(✓)	()	()
c. Mo-99 breakthrough tests? [35.14(b)(4)(ii)]	()	(✓)	()
d. Package opening? [20.205(d)]	(✓)	()	()

Notes/Remarks:

14. <u>Radiation Safety Committee & ALARA [LC 22]</u> ✓			
a. Safety committee meetings documented?	(✓)	()	()
b. Meetings conducted QTLY? Dates _____	(✓)	()	()
c. Documented ALARA policy statement?	(✓)	()	()
d. Annual program review performed?	(✓)	()	()
e. Reports of exceeded investigation levels?	()	(✓)	()
f. All other program elements adequate?	(✓)	()	()

Notes/Remarks:

15. <u>Notifications and Reports</u> ✓			
a. Reports of thefts or losses? [20.402]	(✓)	()	()
b. Notifications and reports of incidents? [20.403, .405]	(✓)	()	()
c. Notifications and reports to individuals? [20.409]	(✓)	()	()
d. Reports of misadministrations? [35.41-.43]	(✓)	()	()
e. Records of misadministrations? [35.44]	()	(✓)	()

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
16. <u>Transportation</u> [71.5a]			
a. Proper shipping containers used? [49 CFR 178.350,173.421, .425]	()	()	()
b. Containers labeled as required?	()	()	()
c. Proper Dot "Radioactive" labels? () WI () YII () YIII	()	()	()
d. Shipping papers provided? [49 CFR 172.200]	()	()	()
(1) contain required information?	()	()	()
e. Dot-7A performance test records? [49 CFR 173.415 (a)]	()	()	()
f. All other transportation requirements met?	()	()	()

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
1. <u>Entrance Briefing</u>			
a. Proper licensee address? [LC 2]	(✓)	()	()
b. Proper use location? [LC 10]	(✓)	()	()
c. Proper users? [LC 12]	(✓)	()	()
d. Organization:			

Notes/Remarks:

No material in use at Family Practice Center (7306 South Lewis) or at the Dental Center (1831 E. 71st Street).

Currently 19 users under the University R&B program.
Reviewed several authorizations (minilicenses) for larger users.

2. <u>Posting, Labeling, Facilities, and Security of Materials</u>			
a. Posting of regs, license, Procedures, and NRC-3? [9.11, 30.7(e), 40.7(e), 70.7(e)]	(✓)	()	()
b. Areas properly posted? [20.203]	(✓)	()	()
c. Containers properly labeled CRM? [20.203(f)]	(✓)	()	()
d. Materials secured? [20.207, LC <u>22</u>]	(✓)	()	()
e. Facilities as required? [LC <u>22</u>]	(✓)	()	()

Notes/Remarks:

3. <u>Independent Measurements</u>			
a. Unrestricted areas within limits? [20.105]	(✓)	()	()
b. Restricted areas within limits? [20.203]	(✓)	()	()
c. Radiation Measurements:			

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
4. <u>Personnel Monitoring Control</u> ✓			
a. Used as required? [20.202, LC <u>22</u>]	(✓)	()	()
(1) Type: (✓) Film () TLD () Chamber ()			
(2) Feq: (✓) M () Q ()			
(3) Processor: () licensee (✓) vendor <u>Landauer</u>			
b. Forms NRC-5 maintained? [20.101]	(✓)		()
c. Forms NRC-4 maintained? [20.102(b)]	()	(✓)	()
d. Determination of prior dose? [20.102(a)]	()	(✓)	()
e. All exposures within limits? [20.101]	(✓)	()	()
f. Exposures to minors limited? [20.104]	()	(✓)	()
g. Exposures: Typical WB <u>"minimal"</u> Max WB <u>30 mR/y</u> Max ring badge - <u>510 mR/y</u>			

Notes/Remarks:

5. Facility and/or Field Site Surveys

- | | | | |
|--|-----|-----|-----|
| a. Facility Contamination surveys? | (✓) | () | () |
| b. Facility exposure rate surveys? | (✓) | () | () |
| c. Other | () | () | () |
| <u>Users required to perform weekly contamination surveys.</u> | | | |
| <u>RSO will institute a new quarterly survey as well.</u> | | | |
| d. Records maintained? [20.401, LC <u>22</u>] | (✓) | () | () |

Notes/Remarks:

INSPECTION CRITERIA		Yes	N/A	Vio.
6. <u>Receipt, Use, Inventory, and Transfer Material</u>				
a.	Written procedures for pickup, receiving, opening of packages? [20.205]	(✓)	()	()
b.	Proper receipt records? [30.51(a), 40.61(a), 70.51(b)]	(✓)	()	()
c.	Package receipt surveys? [20.205, LC _____]	(✓)	()	()
d.	Records of surveys maintained? [20.401(b)]	(✓)	()	()
e.	Possession of only authorized material? [LC 6-8]	(✓)	()	()
f.	Devices or use of materials as authorized? [LC 9]	(✓)	()	()
g.	Transfers to authorized recipients? [30.41, 40.51, 70.42]	()	(✓)	()
h.	Physical inventories performed as required? [LC 22]	(✓)	()	()
i.	Records of inventories properly maintained?	(✓)	()	()
j.	Types of materials used: _____ _____ <i>see attachment</i> _____ _____ _____			

Notes/Remarks: Users are required to perform quarterly inventories. Records of several such inventories reviewed by VRC Inspector.

7. Waste Disposal

a.	Hold for decay/survey/release? I-125, P-32	(✓)	()	()
b.	Release to sanitary sewer?	(✓)	()	()
c.	Other _____ _____ <i>see below concerning waste shipments</i> _____ _____	(✓)	()	()
d.	Records of disposals? [30.51(a), 40.61(a), 70.51(b)]	(✓)	()	()
e.	Records of disposal surveys? [20.401] on shipping manifest	(✓)	()	()

Notes/Remarks: "Radioactive waste disposal record" prepared by each user.

Shipment to waste disposal site through ABCO Services, Inc. approximately three per year. 32 drums shipped during January '84 animal carcasses and scrubbing vials. Reviewed licensee's burial site permit and observed activities to assure compliance with Part 61.

INSPECTION CRITERIA

Yes N/A Vio.

8. Leak Tests [LC 13]

- a. Performed at proper frequencies?
- b. Records maintained?
- c. Proper detection limits and units?
- d. Performed by authorized individuals?
- e. Leakage properly reported?

(✓)	()	()
(✓)	()	()
(✓)	()	()
(✓)	()	()
(✓)	()	()

Notes/Remarks:

GC inventory and leak test data

9. Survey Instrument Calibration

()

Mfg	Model #	Serial #	Calib. Dates
-----	---------	----------	--------------

Various - Calibrations performed annually by Rad. Safety Technology
 using 25.9 mCi and 52.4 mCi Cs-137 sources.
 (20.6 mCi eq.)

Reviewed Source Certificates (NBS traceable)

- a. Equipment as required by application?
- b. Proper calib. frequency? Annual
- c. Proper calib. records?
 - (1) two-points per scale?
 - (2) Performer: (✓) licensee () vendor

(✓)	()
(✓)	()
(✓)	()
(✓)	()

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
10. <u>Training and Procedures</u>			
a. Appropriate worker training? [19.12, LC <u> </u>] Training Film presented 8/16-17/83. Class roster maintained.	(X)	()	()
b. Appropriate radiation safety procedures?	(X)	()	()
c. Appropriate emergency procedures?	(X)	()	()
d. Personnel understand safety and emergency procedures?	(X)	()	()

Notes/Remarks: Workers receive initial orientation from user rather than RSO on Aesh RSO.

11. Notifications and Reports

a. Reports of thefts or losses? [20.402]	()	(X)	()
b. Notifications and reports of incidents? [20.403, .405]	()	(X)	()
c. Notifications and reports to individuals? [20.409]	()	(X)	()
d. Reciprocity notifications? [150.20]	()	(X)	()
e. Reports concerning SNM-Form-742? [70.53]	()	(X)	()
f. Well Logging-Reports of lost sources down-hole? [LC <u> </u>]	()	(X)	()
g. Other: <u>Incident events of minor nature</u>	(X)	()	()

Notes/Remarks: have been investigated and fully documented.

12. Special Requirements

() () ()

Notes/Remarks:

INSPECTION CRITERIA	Yes	N/A	Vio.
13. <u>Transportation</u>			
a. Proper shipping containers used? Type used: <input type="checkbox"/> Type-A [173.415] <input type="checkbox"/> limited quantity [173.421] <input checked="" type="checkbox"/> LSA [173.425] <input type="checkbox"/> Other: _____	(✓)	()	()
b. Containers labeled as required? [178.350-3, 173.421, .425] Other: _____	(✓)	()	()
c. Proper Dot "radioactive" labels? [172.403] <input type="checkbox"/> WI <input type="checkbox"/> YII <input type="checkbox"/> YIII	()	(✓)	()
d. Vehicles placarded? [172.500-508]	(✓)	()	()
e. Adequate blocking, bracing or tie down of packages provided? [177.842(d)]	(✓)	()	()
f. Shipping papers used? [172.200]	(✓)	()	()
g. Shipping papers contain referred information [172.203(d)]	(✓)	()	()
h. Dot-7A performance test records? [173.415(a)]	()	(✓)	()
i. Special form performance test records? [173.476(a)]	()	(✓)	()
j. Other requirements: _____	()	(✓)	()

Notes/Remarks:

Only transportation has been in association with rad waste shipments. ADCO appears to have assumed that waste was properly labeled/classified at time of pick up.

SUPPLEMENTARY INFORMATION

R&D inventory as of 5/1/84:

C-14	6.9 mCi	Rb-86	<1 mCi
H-3	215 "	Ca-45	<1 "
I-125	<1 "	S-35	1 "
Co-57	<1 "	Sc-46	1.6 "
Sa-113	3 "	Eu-65	<1 "
Cr-51	2.8 "		

No sealed sources in use.

APPENDIX B - LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS

Licensee: _____

License no: _____

Identification and summary of action taken	Status
--	--------

Report no: 8201 (3/82) Type n/c: SL 4 Describe: LCG - poss. of 15 ml: Ni-63 -
possession limit = 8

Action taken:

License amended to include sources.

OPEN

CLOSED

Report no: 8201 Type n/c: SL 4 Describe: LC16 (a) food in lab
(b) pipetting on mouth

Action taken:

No such activities observed during lab hours.

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