

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-02050/89001(DRSS)

Docket No. 030-02050

License No. 21-04234-01

Priority I

Category G1

Licensee: V.A. Medical Center  
Southfield and Outer Drive  
Allen Park, MI 48101

Inspection Conducted: December 13, 1989

Purpose of Inspection: Routine unannounced safety inspection to determine compliance with Commission rules, regulations and license conditions.

Inspector: *Roy J. Caniano for*  
James B. Mullauer, M.H.S.  
Radiation Specialist, Nuclear  
Materials Safety, Section 2

*December 27, 1989*  
Date

Approved By: *R.J. Caniano*  
R.J. Caniano, Chief  
Nuclear Materials Safety  
Section 2

*December 27, 1989*  
Date

Inspection Summary

Inspection on December 13, 1989, (Report No. 030-02050/89001(DRSS))

Areas Inspected: Routine unannounced safety inspection which included a review of the licensee's organizational structure; scope of program; audits; training; materials, facilities and instruments; receipt and transfer of radioactive material; personnel radiation protection - external; personnel radiation protection - internal; radioactive effluents and waste disposal; notifications and reports; posting; confirmatory measurements/independent measurements; posting and labeling; and transportation.

Results: Of the areas inspected, no violations of NRC requirements were identified.

## DETAILS

### 1. Persons Contacted

\*Jai Lee, M.D., chairman of the Radiation Safety Committee (RSC)

\*Subhash Danak, M.S., Radiation Safety Officer (RSO)

\*Denotes those present at the exit meeting held on December 13, 1989.

### 2. Inspection History

The V.A. Medical Center was last inspected on March 3, 1987. No violations were identified during the course of that inspection.

### 3. Organization

James H. Stephens is the Director of the hospital; Michael Samson M.D., is the Chief of Staff; Leslie J. Bronn, M.D. is the Chief of Radiology; Jai Lee, M.D. is the Chairman of the Radiation Safety Committee; and Subhash Danak, M.S. is the Radiation Safety Officer.

No violations of NRC requirements were identified.

### 4. Licensed Program

The licensee currently employs two full time nuclear medicine technologist who perform approximately 80 routine diagnostic procedures per month. The licensee also performs approximately 5 - 7 therapy procedures for hyperthyroidism and on rare occasion performs thyroid therapy for treatment of cancer. The licensee also currently has 27 committee approved users of radioactive material either for medical use or research or both. Two persons are currently authorized for medical use and 25 persons are authorized for research. Of the 25 authorized users of radioactive material, only 13 are currently using byproduct material in eight different laboratories. Radioactive material is used in three separate buildings at the licensee's facility. The license currently authorizes any Groups I-V, Xenon-133, and any byproduct material with Atomic Nos. 3 through 83. The kinds and amount of material used is as authorized by this license. Over all, research is currently performed using microcurie amounts of iodine-125, tritium, carbon-14 and phosphorous-32. Iodinations are not performed at this time.

No violations of NRC requirements were identified.

### 5. Internal Audits

Area surveys and wipe tests are performed weekly and submitted to the RSO. If the RSO does not receive the results of tests by any laboratory, no radioactive material can be ordered from that laboratory since all orders for radioactive material are made by the RSO. The RSO

also performs audits of each use area on a monthly basis and records are maintained of the results. Authorized users who are found to be in violation of their license conditions are put on notice and a second infraction is basis for suspension of internal licensed activity.

No violations of NRC requirements were identified.

6. Training, Retraining, and Instruction to Workers

The licensee's RSC reviews individuals training and experience in accordance with the requirements for a Type A Broad Scope Program. No other training is required by this license. However, the RSO performs retraining for persons who may come in contact with radioactive material or who may care for patients under going test and therapy procedures. Instruction is also given to persons who may enter restricted areas during the course of their work such as housekeeping, security, etc. This instruction is given at least annually and on an as needed basis.

No violations of NRC requirements were identified.

7. Materials, Facilities and Instruments

The licensee's facility appears to be as described in their application dated August 19, 1983, and the isotopes, chemical form, quantity and use appears to be as authorized. The licensee uses a 1.3 curie generator on Monday morning of each week. A review of quality control records demonstrated that the licensee performs molybdenum-99m breakthrough tests on each elution, and alumina breakthrough and chromatography on each kit made. The licensee has an acceptance criteria of 95% purity for kits that are made. Leak tests and inventory of sealed sources are performed at required intervals and areas for storage and use of radioactive material appears adequate to prevent unauthorized removal.

The licensee has a variety of radiation detection equipment. Instruments used to detect ambient radiation fields are calibrated annually by an NRC approved calibration firm. Other instruments used to quantify contamination levels and bioassay results are calibrated as needed by the licensee using known calibration standards. The dose calibrator is tested in accordance with NRC Regulatory Guide 10.8 as referenced in the licensee's application dated August 19, 1983.

No violations of NRC requirements were identified.

8. Receipt and Transfer of Radioactive Material

Packages containing radioactive material is normally received during duty hours and are delivered directly to the RSO. Upon receipt, the RSO surveys the package for unusual radiation levels and performs a wipe test on the outside and inside of the package. If the package is found to be

acceptable, the individual ordering the package is then notified to pick up the package. The licensee maintains records of receipt as required. Radioactive material is not normally transferred except as discussed in Section 11 of this report under waste disposal.

No violations of NRC requirements were identified.

9. Personnel Radiation Protection - External

The licensee uses an NRC approved film badge vendor as identified in their application dated August 19, 1983. Film badges are exchanged monthly and reviewed monthly by the RSO. The RSO also reviews the ALARA program at the end of each year. Exposure limits are set forth by the NRC Form 5 criteria. Extremity badges are used by individuals who are likely to receive 25% of Part 20 limits. The NRC inspector's review of personnel exposures showed that exposures to radiation workers were well below the limits set in 10 CFR Part 20. The maximum 1988 whole body exposure noted was 20 millirem and the maximum 1988 extremity exposure noted was 350 millirem. The maximum 1989 whole body exposure noted was 130 millirem and the maximum 1989 extremity exposure noted was 1130 millirem. Nurses caring for patients undergoing therapy are film badged as required.

No violations of NRC requirements were identified.

10. Personnel Radiation Protection - Internal

Potential for exposure of individuals to airborne radioactive material exists on a limited scale. The licensee performs approximately one lung ventilation study per week using xenon-133. Rooms used for these studies are kept under negative pressure and ventilation rates are checked at least semiannually to assure continuance of negative pressure in use areas. In addition, the licensee uses a trap alarm to alert individuals of an accidental release of the xenon gas. The alarm is periodically checked for proper operation.

The potential for iodine-131 uptake by radiation workers also exists on a limited scale. The licensee uses volatile liquid iodine-131 more often than capsules for thyroid therapy. Personnel involved in the administration of liquid iodine-131 have their thyroids checked 24 hours after administration. The acceptance criteria is the referenced limits found in NRC Regulatory Guide 8.20. A review of bioassay results showed levels to be well below the limits specified in Guide 8.20. Researchers using iodine-125 use quantities that are well below the criteria requiring bioassays. None the less, the licensee performs quarterly bioassays on all researchers ordering iodine-125. Again, records showed no unusual uptakes of iodine-125.

No violations of NRC requirements were identified.

11. Radioactive Effluents and Waste Disposal

The licensee disposes radioactive waste by a variety of authorized methods. Water soluble waste is disposed of via sink, short half-lived material is held for decay and long half-lived material not soluble in water is picked up by an NRC authorized waste broker approximately every six months. Records show that a total of 4.4 millicuries of soluble waste was disposed of via sink in 1988. The 1989 totals were not yet available. Transfer records showed that approximately 14 drums of low level waste is normally picked up by a waste broker. Records also show that the licensee performs surveys of waste that is held for decay prior to disposal in the normal trash. The licensee's acceptance criteria for normal waste disposal is below background levels.

No violations of NRC requirements were identified.

12. Notifications and Reports

No overexposures, incidents, thefts or loss of material occurred during the inspection period. The licensee did have one diagnostic misadministration in the inspection period. A review of the licensee's investigation showed that although it did not meet the reporting criteria of 10 CFR 35.33, the licensee did report the misadministration to Region III. A review of corrective action appeared adequate to prevent recurrence.

No violations of NRC requirements were identified.

13. Posting of Notices

The NRC inspector's walkthrough of various use areas of the licensee's facility showed that posting of notices was adequate. The inspector noted that NRC-3 forms, license documents, Parts 19 and 20 and current exposure results were posted as required.

No violations of NRC requirements were identified.

14. Confirmatory Measurements

Radiation measurements made by the NRC inspector showed radiation levels in unrestricted areas to be well below 10 CFR Part 20 limits. Ambient radiation levels in restricted areas were no greater than 0.1 milliroentgen except for measurements made at the surface of sealed sources or generators. Measurements were made at the surface of sealed sources in order to do a side-by-side comparison of survey instruments. The licensee's survey instrument compared within 0.1 milliroentgen to the NRC inspector's survey instrument.

No unusual radiation levels were identified in areas inspected.

No violations of NRC requirements were identified.

15. Posting and Labeling

The NRC inspector's walkthrough of various areas in the licensee's facility showed that restricted areas are posted with Caution Radioactive Materials signs and/or Caution Radiation Area signs. Packages and containers were also properly posted with required signs.

No violations of NRC requirements were identified.

16. Transportation

The licensee does not transport radioactive material outside the confines of their facility. However, some waste is transferred to a waste broker approximately every six months. Transfer records appeared to be appropriate, waste is classified and quantified and packaging of the waste appears to be as required.

No violations of NRC requirements were identified.

17. Exit Meeting

At the conclusion of the inspection on December 13, 1989, the inspector met with those individuals identified in Section 1 of this report. A summary of the area inspected as well as the results were reviewed with these individuals.