

## CENTRAL HOSPITAL FOR VETERINARY MEDICINE

Jonathan Pfingsten  
Sr. Health Physicist  
US Nuclear Regulatory Commission, Region 1  
475 Allendale Rd  
Suite 102  
King of Prussia, PA 19406-1415

Materials license number 06-35047-01  
Docket number: 030-38622

Sir,

This is in response to your letter dated January 9, 2023 requesting more information regarding Dr. Adam Miller.

### Response

- a. Dr. Miller was an authorized user at
  - i. Northstar VETS
    1. 315 Robbinsville-Allentown Rd, Robbinsville NJ, 08691
    2. 609-259-8300
    3. Institutional License number: New Jersey 506809
    4. Dr. Miller was not listed specifically in the license, but worked under the supervision of the doctors listed in the license.
  - ii. At Cornell University, Dr Miller did not handle or administer I-131 injections, but was responsible for care of the patients before and after treatment, and was available for emergency treatments while the patients were in isolation for therapy as needed under the supervision of the authorized users.
- b. Dr. Miller's radiation safety training history in the following topics was performed at Northstar Vets on as documented in the attached materials from Northstar Vets on 11/30/2020 and 9/22/21. This training was also performed by us in house on January 26, 2023 using the attached training materials.
  - i. Radiation protection principles
  - ii. Characteristics of ionizing radiation
  - iii. Units of radiation dose and quantities
  - iv. Radiation detection instrumentation
  - v. Biological hazards of exposure to radiation
  - vi. Hands on use of radioactive materials

- c. It is confirmed that Dr. Miller will be an authorized user only for I-131 in the treatment of animal hyperthyroidism as listed in our nuclear materials license.

If you need additional information, please let us know. Thanks very much.

Sincerely



Ken Aldrich, MBA, Hospital Director, Management representative



Lance Rozear, DVM, DACVR, Radiation safety officer

February 8, 2023

# *The I-131 therapy program at CHVM*

## *Outline of training topics*

January, 2023

### Outline

- 1 Introduction and Background
- 2 Radiobiology and Radiation Safety
- 3 Personnel organization, safety and employee protection
- 4 Facilities maintenance, materials handling and waste management
- 5 Patient treatment and safety protocols
- 6 Protocols for emergency response

#### **1. Introduction and background**

- **Program purpose**
- **Feline hyperthyroidism**
  - Basic pathophysiology
  - Treatment options
- **Iodine metabolism**
- **Radioactive iodine (radioiodine, I-131)**
  - Properties
- **Radioiodine therapy for hyperthyroidism**

#### **2. Radiobiology and radiation safety**

- **Definitions**
  - Radiation
  - Radioactive materials (radiopharmaceuticals)
  - Exposure
  - Contamination
  - Internal exposure
  - External exposure
- **Radiation dose**
  - *Rad*
  - *Gray*
  - *Rem*
  - *Sievert (Sv)*
- **Units of radioactivity**
  - Becquerel
  - Curie
- **Allowable radiation doses to employees and general public**
- **Biological effects of radiation**
  - DNA damage
  - Tissue damage

- **Electromagnetic radiation (EMR)**
  - Ionizing radiation
- **Atomic particles.**
- **ALARA**
  - Ways to minimize exposure
    - Time
    - Distance
    - Shielding

### **3. Personnel organization, safety and employee protection**

- **Personnel**
  - Approved and trained personnel only
  - Specific personnel not approved
    - Persons under the age of 18
    - Persons known to be pregnant or having given notice of a suspicion of pregnancy
  - Chief management positions
    - **Radiation safety officer (RSO)**
      - RSO duties
    - **Chief medical officer (CMO)**
      - CMO duties
    - **Management representative**
      - Management representative duties
  - Approved personnel
    - Authorized users
    - Supervised users
    - Contact information availability
  - Ancillary personnel
    - Radiation safety awareness training
- **Personnel dosimetry**
  - Types
  - Care and usage rules
- **Bioassays**
  - Definition and justification
  - Conditions of use
- **Records**
- **Worker's rights and obligations**
- **Employee protection**
  - NRC Regulation CFR 10, part 30.7
  - NRC regulation 10 CFR part 19
- **Deliberate misconduct**
- **Documentation location**

### **4. Facilities maintenance, materials handling and waste management**

- **Facility design**

- **Diagrams of building and I-131 room**
- **Postings and labeling containers**
  - Signage
  - CAUTION, RADIATION AREA
  - Container labels
- **I-131 room safety rules**
- **Room maintenance**
  - **Cleaning**
  - **Radiation surveys**
- **Radiation surveys**
  - **Instrumentation**
    - Survey instrument accessibility
    - Equipment maintenance and calibration
  - **Routine room surveys**
    - Frequency
    - Areas to be surveyed
    - Who is responsible
    - Types, contamination and area
    - Levels of contamination
  - **Other surveys to be performed**
    - Personnel
    - Patients
    - Waste
    - Other
    - Records
- **Material control and accountability**
  - **Ordering and receiving radioisotopes**
    - Possession limit
  - **Internal transfer**
  - **Procedures for receiving packages containing radioactive materials**
    - Normal
    - Off-duty
    - Notification of user and RSO
    - Security
    - Receipt of damaged packages
    - Procedures for opening and examining packages
    - Leakage and contamination
    - Monitoring packages and packing materials
    - Gloves
  - **Safe, secure and shielded storage of unit doses of radioiodine**
  - **Material transfer and disposal**
  - **Areas where radioactive material is used and stored**
  - **Potential hazards associated with radioactive material in each area where the individuals will work**
- **Waste**

- Methods of waste disposal
  - Sanitary sewer
  - Decay-in-storage (DIS)
  - Burial
  - Incineration
  - Transfer
- Handling of degradable waste and animal excreta
- Protocol for disposal into the sanitary sewer
- Protocol for Decay in storage
- Waste storage surveys
- **Records**

## **5. Patient treatment and safety protocols**

- **Description of facilities**
  - Security
  - Safe housing of radioactive animals
- **Safe handling of animals treated with I-131**
- **SOP for administering I-131 to patients**
- **Routine medical care**
- **Emergency care**
  - Medical
  - Surgical
- **Handling of carcasses**
- **Safe cleaning practices**
- **Monitoring records for safe release of radioactive animal patients**
- **Release criteria for patients**
- **Instructions to the individuals when releasing radioactive animal patients**
- **Animal experimentation**

## **6. Protocols for emergency response**

- **Protocol locations**
- **RSO/approved personnel contact information location**
- **Accidental exposure of personnel**
- **Immediate steps to prevent or control spread of contamination**
- **Clean-up instructions, decontamination**
  - **Spills**
    - Radioactive Materials Spill Kit location and contents
    - Minor vs. Major spills
- **Response to minor spills**
- **Response to major spills of liquids**
- **Response to minor fires**
- **Fires, Explosions, or Major Emergencies**
- **Emergency egress and survey procedures (i.e. fire, etc)**
- **Bioassay analysis in emergency procedures**
- **Accidental exposure of personnel**

- **Types**
  - **Response**
  - **Decontamination**
- **Reporting requirements for potential individual exposure, contamination or release of materials**

# Central Hospital for Veterinary Medicine


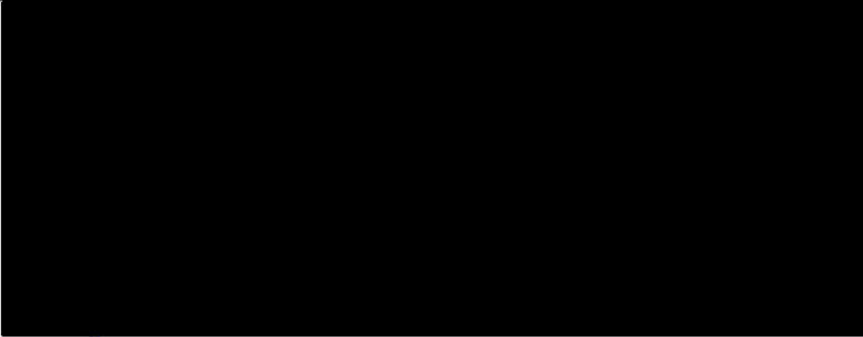
I-131 Program

Radiation safety training

Authorized users/Supervised users

January 2023

## Attendance

<u>Name</u>	<u>Initials</u>	<u>email</u>	<u>Contact Phone</u>
Adam Miller			
Brittany Maher			
Gabby Marcarelli			
Jennifer Leibovitz			

Completed 1/26/23





**Training for Individuals Working In  
Or Frequenting Restricted Areas**

**Training for Individuals Involved in the Feline I-131 Program**

**Characteristics of Ionizing Radiation**

- Cannot detect radiation without specialized equipment
- Can penetrate through walls and floors

**Biological Hazards of Exposure to Radiation**

- Basic radiation biology, e.g., interaction of ionizing radiation with cells and tissues
- Deterministic vs. Stochastic Radiation Effects
- Thyroid gland sensitivity to I-131

**Units of Radiation Dose and Quantities**

- Risk estimates, including comparison with other health risks
- Posting requirements (10CFR20.1902)

**Radiation Protection Principles**

- Concepts of time, distance, and shielding
- Proper use of personnel dosimetry (when applicable)
- Access control procedures (10CFR20.1601, 10CFR20.1802)
- Patient release procedures (license condition)
- Concept of maintaining exposure ALARA (10CFR20.1101)
- Occupational dose limits and their significance (10CFR20.1201)
- Dose limits to the embryo/fetus, including instruction on declaration of pregnancy (10CFR20.1208)
- Worker's right to be informed of occupational radiation exposure (10CFR19.13)
- Applicable regulations, license conditions, information notices, bulletins, etc. (10CFR19.12)
- Where copies of the applicable regulations, the NRC license, and its application are posted or made available for examination (10CFR19.11)
- Proper recordkeeping required by NRC regulations (10CFR19.12)
- Appropriate surveys to be conducted (10CFR20.1501)

**Radiation Detection Instrumentation**

- Proper calibration of required survey instruments (10CFR20.1501)
- Emergency procedures: What to do in the case of the death of a cat

- Decontamination and release of facilities and equipment (10CFR20.1406, 10CFR30.36)
- Dose to individual members of the public (10CFR20.1301)

#### **Hands-on Use of Radioactive Materials/Equipment**

- Survey meter review
- Review injection technique

#### **General Radiation Safety Procedures**

- Survey requirements
- Waste management
- Safe handling of food and water dishes, bedding, excretions
- Litter management
- Each individual's obligation to report unsafe conditions to the RSO (10CFR19.12)
- Instruction in procedures for notification of RSO and AU, when responding to animal death or exposure event (spill), to ensure that radiation protection issues are identified and addressed in a timely manner

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7:00 AM	07:43 AM(1409 CM Abrielle left the meeting.Reason: Host closed the meeting. )
7:04 AM	07:25 AM(Adam Miller's iPhone left the meeting.Reason: left the meeting.)
7:25 AM	07:43 AM(Adam Miller's iPhone left the meeting.Reason: Host closed the meeting. )
7:00 AM	07:43 AM(Ania Watrucki left the meeting.Reason: Host closed the meeting. )
7:01 AM	07:11 AM(April H. left the meeting.Reason: left the meeting.)
7:00 AM	07:42 AM(Bryan's iPhone got disconnected from the meeting.Reason: Network connection error. )
7:01 AM	07:42 AM(Cait McNamara left the meeting.Reason: left the meeting.)
7:00 AM	07:16 AM(Eddie Garcia got disconnected from the meeting.Reason: Network connection error. )
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7:00 AM	07:44 AM(HB got disconnected from the meeting.Reason: Network connection error. )
7:00 AM	07:42 AM(karah burns left the meeting.Reason: left the meeting.)
7:00 AM	07:43 AM(Karissa Mcclellan left the meeting.Reason: Host closed the meeting. )
7:00 AM	07:43 AM(Kimberly Hammer left the meeting.Reason: Host closed the meeting. )
7:04 AM	07:43 AM(Kristen Arban left the meeting.Reason: Host closed the meeting. )
6:59 AM	07:24 AM(Meghan Carlucci got disconnected from the meeting.Reason: Network connection error. )
7:25 AM	07:43 AM(Meghan Carlucci left the meeting.Reason: Host ended the meeting.)
7:00 AM	07:42 AM(Melissa's iPhone left the meeting.Reason: left the meeting.)
7:00 AM	07:37 AM(Michele Corbo O'Brien left the meeting.Reason: left the meeting.)
7:00 AM	07:34 AM(Noelle got disconnected from the meeting.Reason: Network connection error. )
7:36 AM	07:43 AM(Noelle got disconnected from the meeting.Reason: Network connection error. )
7:01 AM	07:43 AM(Sabrina left the meeting.Reason: Host closed the meeting. )
7:00 AM	07:43 AM(Sara Demeter left the meeting.Reason: Host closed the meeting. )
7:01 AM	07:41 AM(Tammy Anderson left the meeting.Reason: left the meeting.)

30nov20 meeting attendance

Name (Original Name)	User Email	Join Time	Leave Time	Duration (Minutes)
Kimberly Hammer		11/30/2020 07:04:58 AM	11/30/2020 07:42:54 AM	38
karah burns		11/30/2020 07:05:01 AM	11/30/2020 07:05:12 AM	1
Melanie Puchot		11/30/2020 07:05:02 AM	11/30/2020 07:05:16 AM	1
Stephanie K		11/30/2020 07:05:06 AM	11/30/2020 07:07:14 AM	3
Michele Hinks		11/30/2020 07:05:10 AM	11/30/2020 07:05:21 AM	1
karah burns		11/30/2020 07:05:12 AM	11/30/2020 07:42:50 AM	38
Melanie Puchot		11/30/2020 07:05:16 AM	11/30/2020 07:42:53 AM	38
Michele Corbo O'Brien		11/30/2020 07:05:18 AM	11/30/2020 07:05:25 AM	1
Michele Hinks		11/30/2020 07:05:21 AM	11/30/2020 07:42:41 AM	38
Jessica Pascal		11/30/2020 07:05:21 AM	11/30/2020 07:05:28 AM	1
Courtney Chenkus		11/30/2020 07:05:23 AM	11/30/2020 07:05:31 AM	1
Adam Miller		11/30/2020 07:05:23 AM	11/30/2020 07:05:35 AM	1
Dana Hinderliter		11/30/2020 07:05:24 AM	11/30/2020 07:05:33 AM	1
Michele Corbo O'Brien		11/30/2020 07:05:26 AM	11/30/2020 07:42:53 AM	38
Ann Smith		11/30/2020 07:05:28 AM	11/30/2020 07:05:43 AM	1
Jessica Pascal		11/30/2020 07:05:28 AM	11/30/2020 07:42:38 AM	38
Tammy Anderson		11/30/2020 07:05:29 AM	11/30/2020 07:05:41 AM	1
Courtney Chenkus		11/30/2020 07:05:31 AM	11/30/2020 07:42:42 AM	38
Dana Hinderliter		11/30/2020 07:05:34 AM	11/30/2020 07:42:53 AM	38
Adam Miller		11/30/2020 07:05:36 AM	11/30/2020 07:42:54 AM	38
Tammy Anderson		11/30/2020 07:05:42 AM	11/30/2020 07:42:54 AM	38
Ann Smith		11/30/2020 07:05:44 AM	11/30/2020 07:40:36 AM	35
Sabrina		11/30/2020 07:06:37 AM	11/30/2020 07:06:45 AM	1
Sabrina		11/30/2020 07:06:46 AM	11/30/2020 07:42:53 AM	37
Jen Bell-Horowitz		11/30/2020 07:07:55 AM	11/30/2020 07:08:01 AM	1
Stephanie K		11/30/2020 07:07:55 AM	11/30/2020 07:09:10 AM	2
Jen Bell-Horowitz		11/30/2020 07:08:02 AM	11/30/2020 07:08:28 AM	1
Siobhan Theresa		11/30/2020 07:08:13 AM	11/30/2020 07:10:37 AM	3
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Stephanie K		11/30/2020 07:09:10 AM	11/30/2020 07:43:24 AM	35
Jen Bell-Horowitz		11/30/2020 07:09:57 AM	11/30/2020 07:10:38 AM	1
April Horvath Wigginton		11/30/2020 07:10:24 AM	11/30/2020 07:11:25 AM	2
Siobhan Theresa		11/30/2020 07:10:37 AM	11/30/2020 07:42:38 AM	33
Jen Bell-Horowitz		11/30/2020 07:10:38 AM	11/30/2020 07:42:53 AM	33
April Horvath Wigginton		11/30/2020 07:11:26 AM	11/30/2020 07:42:53 AM	32
Ania Watrucki		11/30/2020 07:13:06 AM	11/30/2020 07:13:10 AM	1
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