

February 10, 2022

Dear Casey Alldredge,

In response to New NRC License – Request for Additional Information email dated February 9, 2022, Tier 1 has responded to your requests with this letter and the attached “Release of Felines After Radioiodine Therapy” procedure and “Instructions to Caretakers of Felines After Radioiodine Therapy” document as requested for the Tier 1 license application.

Please let us know if you require any further documentation or have additional questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'Chris Rahm', with a stylized flourish at the end.

Chris Rahm
Chief Operations Officer
Tier 1 VMC

Release of Felines After Radioiodine Therapy

- I. Objective:

To provide a procedure for the radiological safety evaluation of felines that have received a radioiodine therapy dose prior to release to an unrestricted environment.
- II. Responsibility:

The veterinary AU or appropriately trained radiation worker is responsible for ensuring the release conditions listed below have been met before releasing an animal to a caretaker following administration of licensed material.
- III. Evaluation Procedure:
 - a. Exposure rate measurements will be measured and recorded for each feline administered a radioiodine therapy dose.
 - i. Measurements will be made with an appropriate survey meter
 - ii. Measure and record background reading
 - iii. Measurements will be taken at 1 foot from the feline; not inside the kennel as the kennel and/or litter box may cause inaccurate readings
- IV. Release Conditions:
 - a. Felines will be housed in separate kennels at the Tier 1 facility for a minimum of 3 days after administration; AND
 - b. The dose rate at 1 foot from the feline must be less than 0.5 mrem/hr; AND
 - c. The *Instructions for Caretakers of Felines After Radioiodine Therapy* document must be reviewed with the caretaker, all questions answered, the document signed and stored for records, and a copy provided to the caretaker; AND
 - d. The *Release Calculation* form is completed and the AU or RSO have verified that the calculation ensures all public dose limits (2 mrem in any one hour and 100 mrem/year) will not be exceeded.

Release Calculation

Feline Name/Identification: _____

Date of Radioiodine Administration: _____

Activity of Administration: _____

Caretaker: _____

Phone Number: _____

Exposure Rate Measurements:

Estimated Time	Date & Time	Background Measurement (mrem/hr)	Measurement (mrem/hr @ 1 foot)
4 hours post administration			
24 hours post administration			
48 hours post administration			
72 hours post administration			
96 hours post administration			

Using the following calculation and assumptions determine if the feline meets the release requirements. Fill in the initial activity and calculated accumulated exposure dose.

$$D(\infty) = \frac{34.6 \Gamma Q_0 T_p (0.50)}{(100 \text{ cm}^2)}$$

- $D(\infty)$ - accumulated exposure _____ rem
- Γ – specific gamma ray constant for a point source 2.2 R/mCi-hr @ 1 cm
- Q_0 – initial activity _____ mCi
- T_p – physical half-life in days 8 days
- (0.50) – conservative occupancy factor 0.50

Accumulated dose must be < 0.1 rem for release.

Final measurement at 1 foot must be < 0.5 mrem/hr for release.

Written instructions must be reviewed and provided to the caretaker for release.

AU or RSO Signature

Date

Instructions to Caretakers of Felines After Radioiodine Therapy

Your pet has been treated with radioactive iodine and still contains a low level of radioactivity. The present level of radioactivity is below the regulatory level necessary for isolating the animal from humans. Because some radioactivity will be present for the next few weeks, it is necessary to follow these guidelines for the next **3 weeks** to further reduce human exposure to radiation that is emitted by the cat and by the radioiodine that is excreted by the cat in urine and saliva.

- I. Avoid public transportation; avoid staying in public accommodations (e.g., hotels). Use an animal carrier to maintain distance during the transportation home.
- II. Do not allow your cat to sit on or sleep with anyone after coming home. Casual contact is ok, but prolonged lap sitting, petting, or sleeping in close contact should be avoided. These restrictions are even more important for young children and/or pregnant women.
- III. Young children and/or pregnant women should not have any contact with the food bowl, water bowl, toys, or animal waste and litter for the full 3 weeks after discharge.
- IV. If you have other cats or animals ensure they do not eat or drink from the same bowls, as radioiodine is excreted in the saliva.
- V. Wear disposable gloves when handling animal waste and the litter box.
- VI. Wash your hands after touching the cat or anything they have been in contact with (e.g., food/water bowl, toys, and the litter box).
- VII. Appropriate flushable litter will be recommended and/or provided by Tier 1 during discharge from the facility. All litter should be disposed of down the toilet for the next 3 weeks or until you have used all the litter, whichever is longer in duration.
- VIII. Please keep your cat indoors if they tend to wander. You do not want your cat to expose other individuals to radiation unnecessarily.
- IX. Do not let your cat eat, walk, or lounge on areas where you prepare food. Do not let your cat eat off your personal dishes.
- X. If your cat vomits a hairball, wearing disposable gloves, pick up and dispose of the hairball down the toilet with two flushes and wash the surface area under the hairball with soap and water and a household cleaning agent such as OxyClean™, which will remove iodine from surface area.
- XI. If your cat needs emergency care within the first 3 weeks after discharge, advise the veterinary staff of the recent radioiodine therapy.
- XII. At the end of the 3 weeks after discharge, you may resume normal activities with your cat.
- XIII. Call _____ if you have any other radiation safety questions.

Pet Owner Name & Signature

Date

Tier 1 Staff Name & Signature

Date

From: [Chris Rahm](#)
To: [Alldredge, Casey](#)
Cc: [Misty Liverett](#); [Simmons, Michelle](#)
Subject: [External_Sender] Re: Tier 1 Veterinary Medical Center - New NRC License - Request for Additional Information
Date: Thursday, February 10, 2022 9:14:17 AM
Attachments: [2022.02.10_NRC_Request_for_Additional_Information_Response.pdf](#)
[Tier 1_Release_of_Felines_After_Radioiodine_Therapy.pdf](#)
[Tier 1_Instructions_for_Caretakers_of_Felines_After_Radioiodine_Therapy.pdf](#)

Casey,

Please see attached documents as requested.

Thank You,
Chris

On Wed, Feb 9, 2022 at 2:44 PM Alldredge, Casey <Casey.Alldredge@nrc.gov> wrote:

Chris and Misty,

I realized today that back on January 6, you provided me a zip file of your procedures. Misty and I talked about the procedures before you sent them and I want to reiterate again that the draft procedures you provided on Area Monitoring, Radioactive Spill and Decontamination, Radioactive Waste Management, and the Radiation Safety Program are not going to be tied down as part of the license. The reason they won't be tied down as part of the license is because you committed to the following statements which cover the subjects described in those procedures:

- “We will develop, implement, and maintain procedures for ensuring accountability of licensed materials at all times.”
- “We will develop, implement, and maintain procedures for safe use, security and emergencies.”

Although they are not part of the license, these procedures, should be made available for NRC inspections.

However, two of the items that you provided: “Release of Felines after Radioiodine Therapy” and “Instructions for Caretakers of Felines after Radioiodine Therapy” are typically tied down as part of NRC licenses. The reason they are tied down is that there is not a commitment in the application regarding these items. The pdfs that you provided on January 6 have a watermark on them that says “draft.” Could you please provide a final version of those two documents so that I can include them on the license, with a signed/dated cover letter?

If you have any questions, feel free to reach out.

Thanks,

Casey Alldredge

Health Physicist

Materials Licensing and Decommissioning Branch

Region IV, USNRC

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