

From: [Bryan Harnett](#)
To: [Pfingsten, Jonathan](#)
Subject: [External_Sender] Re: Renewal of NRC License - Catamount Veterinary Specialty and Emergency Hospital PC d/b/a/ Burlington Emergency & Veterinary Specialists
Date: Sunday, July 28, 2019 1:15:20 PM
Attachments: [20190728130823.pdf](#)
[Radiation safety for I-131 use October 2012 \[Compatibility Model\].pdf](#)

License No.: 044-31369-01

Docket No: 030-38029

Control No: 612372

Dear Mr. Pfingsten,

Please find my attached and updated application for renewal for Catamount Veterinary Specialty and Emergency Hospital, PC.

Thank you,

Bryan Harnett

On Fri, Jul 26, 2019 at 9:17 AM Bryan Harnett <harnett.bryan@gmail.com> wrote:

Dear NRC -

Thank you for your help in this matter. I have received this email and will work diligently to complete the requests.

Bryan

On Fri, Jul 26, 2019 at 9:05 AM Pfingsten, Jonathan <Jonathan.Pfingsten@nrc.gov> wrote:

License No.: 044-31369-01

Docket No: 030-38029

Control No: 612372

Dr. Harnett – I am the NRC license reviewer assigned to the renewal of the Catamount Veterinary Specialty and Emergency Hospital PC license.

As we discussed on the phone, the guidance for licensing your type of program has been updated since your previous licensing cycle. This has led to a significant number of discrepancies between your previous commitments and the updated guidance.

You requested the opportunity to submit an update to your renewal request utilizing the NUREG 1556, Volume 7, Revision 1 guidance. The document can be found at <https://www.nrc.gov/docs/ML1806/ML18065A006.pdf>. The checklist containing the requested information can be found in Appendix B found on page 107 of the overall PDF document. The same licensing checklist is used for initial and renewal applications.

As you are going through the requested checklist, please feel free to either directly copy and paste commitments or simply mark the boxes on a printed copy to be scanned and sent to us. While the phrase "Suggested Response" is used, it makes the process much easier for both parties if you utilize the exact wording.

Please note that some items will require additional information to be attached regardless of commitments.

Additionally, Appendix D on page 129 of the overall PDF document contains additional guidance for laboratory animal and veterinary medicine uses. Please review this section and include a discussion of release criteria and instructions to caretakers. Examples are provided in the NUREG guidance if needed.

Finally, with your submission, please include any necessary request, information, or documentation concerning the removal of any unnecessary locations of use currently approved on your license.

Your reply must be an originally signed and dated letter. The letter may be scanned and submitted as a pdf document attached to an email or it may be sent by regular mail. If we do not receive a reply from you within 30 calendar days from the date of this e-mail, we will assume that you do not wish to pursue your renewal request. **Please reference Mail Control number 612372 with your updated submission.**

Please respond by e-mail to acknowledge that you have received the e-mail request for additional information. We will continue our processing of your request upon receipt of the updated information.

If you have any questions, feel free to reach out to me via email or at the number below.

Thank you,

Jonathan Pfingsten

Health Physicist

U.S. Nuclear Regulatory Commission

RI/DNMS/CIRDA

(610) 337-5170

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July 28, 2019

Jonathan Pfingsten
Health Physicist
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission, Region I
2100 Renaissance Boulevard, Suite 100
King of Prussia, PA 19406-2713

Bryan Harnett, DVM, Diplomate ACVIM
Catamount Veterinary Specialty and Emergency Hospital d/b/a Burlington Emergency &
Veterinary Specialists
1417 Marshall Avenue
Williston, Vermont, 05495

License # 44-31369-01
Docket No. 03038029
Control No. 612372

Dear Mr. Pfingsten,

Please find the following responses for items 5-11 on our NRC form 313 renewal application.

5. Radioactive Material

Radioisotope	Chemical/Physical Form	Maximum Possession Limit
I ¹³¹	unbound/volatile	50 millicuries

6. Purpose for which licensed material will be used

I¹³¹ will be used for the treatment of feline pets for hyperthyroidism. Most patients will be treated with 2-3 millicuries of I¹³¹. Rarely (1 out of 200), doses may be up to 20 millicuries I¹³¹. Six patients or less will be treated per week.

7. Individual responsible for the radiation safety program and their training experience.

Radiation safety officer (RSO):

Bryan E. Harnett, DVM, Diplomate American College of Veterinary Internal Medicine (DACVIM)

Experience:

2009-2019:

Catamount Veterinary Specialty and Emergency Hospital, Williston, Vermont 05495
On-site training and hands on use of I^{131} in the treatment of nearly 500 feline pets for hyperthyroidism.

Yearly review and periodic on-site training with Marleen Moore, Medical Physicist from University of Vermont Medical Center (retired) consisting of (Radiation protection principles, units of dose and quantities, radiation detection equipment and biohazards of radiation exposure).

2000-2007:

Mission MedVet, Mission, Kansas, 66202

On-site training and hands on use of I^{131} in the treatment of @ 50 feline pets for hyperthyroidism.

Yearly on-site training with the State of Kansas Radiation Safety Officer, James Johnson. This training was composed of 2 hour sessions consisting of training in radiation safety specifically related to the use of I^{131} (Radiation protection principles, units of dose and quantities, radiation detection equipment and biohazards of radiation exposure.) @ 14 hours of training.

1997-2000:

The Bobst Hospital of the Animal Medical Center, New York, New York, 10021
Internship and Residency in Internal Medicine.

Three hours per week of didactic lectures related to veterinary internal medicine. At least one lecture per year related to I^{131} therapy and another lecture related to external beam radiation therapy with cancer patients. Managed patients with hyperthyroidism before and after therapy with radioactive iodine. @ 30 hours of training and contact time.

1993-1997:

Kansas State University, College of Veterinary Medicine
Doctor of Veterinary Medicine.

Training in radiation safety and use of radiopharmaceuticals. See attached course descriptions from KSU, CVM CS 715, CS 724. Biologic effects of radiation and radiation safety measures. @ 30 hours of training.

8. Training for Individuals Working In or Frequenting Restricted Areas.

Training Program for Use of I-131 for Animal treatments

Personnel shall be instructed before assuming duties with, or in the vicinity of radioactive materials, during annual refresher training, and whenever there is a significant change in duties, regulations, terms of the license, or type of radioactive material used. Training will be documented by attestation of review of this document and successful completion of quiz.

- Basic radiation biology, e.g., interaction of ionizing radiation with cells and tissues (10 CFR 19.12) Ionizing radiation, such as the gamma rays that are emitted from the radioactive materials that we use, can potentially lose energy by interactions in the body. Though extremely unlikely, it is believed that this may result in damage to critical structures in the body, particularly DNA. At high doses and dose rates, many times the levels that are received occupationally, it is known that radiation will cause cell mutations and cell death. At the limited radiation exposure levels that are set for occupational exposure, there has not been a demonstrable effect.
- Basic radiation protection to include concepts of time, distance, and shielding (10 CFR 19.12) While working with animals who have been injected with a radiopharmaceutical, the way to minimize your radiation exposure is primarily time and distance. Use the least amount of time close to the animal and the greatest distance possible at all other times. The use of lead aprons is not recommended. For I-131 they result in a reduction of less than 10%..Use syringe shields and, if appropriate, vial shields at all times.
- When receiving boxes or "ammo cans" containing dosages, these must be checked in using the following sequence: Survey at 3 feet, proceed if reading is low and expected value, survey at surface, again proceed only if as expected, do the wipe test and unpack the box.
- Concept of maintaining exposure ALARA (10 CFR 20.1101) ALARA means As Low As Reasonably Achievable. The operating philosophy is to implement practices that will minimize exposure to personnel and the public in a reasonable (i.e. cost effective) and functional way. As a measure of whether we are meeting ALARA goals, the RSO reviews occupational exposures. If the exposures are below 1/10 of the Maximum Permissible Dose, it is felt that no additional safety measures need to be implemented.
- Risk estimates, including comparison with other health risks (10 CFR 19.12)
- Proper use of personnel dosimetry (10 CFR 20.1201) Personnel dosimeters are issued and are to be worn whenever working near the animals who have been treated with I-131. They must be stored somewhere away from ionizing radiation (other than background) Do not wear your badge if having a diagnostic radiology or nuc med procedure. The dosimeter is may give erroneous results if left in a hot location.

- Occupational dose limits and their significance (10 CFR 20.1201) The whole body limit is 5000 millirem per year or roughly 500 millirem per month. Film badges must be issued to anyone who may receive 1/10 of the limit.
- Dose limits to the embryo/fetus, including instruction on declaration of pregnancy (10 CFR 20.1208) If pregnant, a worker needs to first "declare" her pregnancy by notifying the Radiation Safety officer. Information that is required for a pregnant worker will be reviewed by the RSO and a fetal monitor badge issued. In addition, work duties will be adjusted as needed. The exposure limits for the fetus are 500 millirem over gestation, not to exceed 50 millirem per month.
- Workers right to be informed of occupational radiation exposure (10 CFR 19.13) Film badge records are posted when received and should be reviewed and initialed.
- Each individual's obligation to report unsafe conditions to the RSO (10 CFR 19.12) If you believe that the work situation involves unsafe use of radioactivity or conditions for you as an employee, you are obligated to report that to the Radiation Safety officer
- Applicable regulations, license conditions, information notices, bulletins, etc. (10 CFR 19.12) Use of radioactive materials is with the conditions of the radioactive materials license issued by the Nuclear Regulatory Commission. The primary documents governing this use are 10CFR 19 and 20 which may be reviewed by going to www.nrc.gov then Electronic Reading Room tab along top, then select "10 CFR" from the menu options that pop up.
- Where copies of the applicable regulations, the NRC license, and its application are posted or made available for examination (10 CFR 19.11) Form 3 (Notice to Employees) is posted at the coffee area. A copy of the license is also posted at this location
- Emergency procedures (10 CFR 19.12), The primary emergency situation is that I-131 contaminates the floor of the injection area, with the potential for contamination of shoes or clothing. The decontamination is the responsibility of the RSO, Steps that you should take if this happens include: do not touch anything that might be contaminated unless wearing gloves, do not leave the room until you have been checked for contamination, including checking the bottom of your shoes. A copy of the steps to take in case of a spill will be posted in the treatment area.
- Dose to individual members of the public (10 CFR 20.1301) The limit for the general public is 100 millirem per year. This limit is used in designing areas where radiation and radioactivity will be used, for example when evaluating the shielding needed around the treatment and waste storage areas..

Quiz

Name: _____

Radiation Safety review

Date:

1. When must an employee be issued a personnel dosimeter (e.g. film badge)?
2. Where would you find information on your rights as a radiation worker?
3. What would you do if an I-131 contamination occurred in the animal room?
4. What are the best techniques for reducing your exposure?
5. What are the following annual dose limits:
 - a. whole body for an employee
 - b. pregnant woman with respect to the fetus
 - c. a member of the general public

I have read the annotated outline on "Training Program for Use of I-131 for Animal Treatments"

I will call Marleen Moore, M.S. (847-4845) if I have radiation safety questions.

Name

9. Facilities and Equipment:

Please see Amendment No. 2

License No. 44-31369-01

Docket No. 03038029

Control No. 611171

10. Radiation Safety Program:

Radiation Monitoring Instruments:

GM survey meter with pancake probe (beta/gamma).

We will use instruments that meet the radiation monitoring instrument specifications published in Appendix I in NUREG–1556, Volume 7, Revision 1, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope.' We reserve the right to upgrade our survey instruments as necessary.

Instrument Calibration:

We will implement the model radiation survey meter calibration program published in Appendix I in NUREG–1556, Volume 7, Revision 1 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope.'"

Material Receipt and Accountability:

We will develop, implement, and maintain procedures for ensuring accountability of licensed materials at all times.

Occupational Dose:

We will monitor individuals in accordance with the guidance in the section titled, 'Radiation Safety Program–Occupational Dose' in NUREG–1556, Volume 7, Revision 1, 'Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Academic, Research and Development and Other Licenses of Limited Scope.'

Safe Use of Radionuclides, Security, and Emergency Procedures:

We will adopt the procedures for the safe use of radionuclides, security and emergencies as published in Appendix L in NUREG–1556, Volume 7, Revision 1, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope.'

Surveys:

We will survey our facility and maintain contamination levels in accordance with the survey frequencies and contamination levels published in Appendix M in NUREG–1556, Volume 7, Revision 1, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope.'

11. Waste Management.

We will use the decay-in-storage model waste procedures that are published in appendix P in NUREG-1556, Volume 7, Revision 1, 'Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope.'

Please see Amendment No. 2
License No. 44-31369-01
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Control No. 611171

Additionally, all radioactive materials at our previous site (200 Commerce St., Williston, Vermont 05495) have now decayed in storage on site and were disposed of on July 13, 2019. The site has been surveyed and no further radioactivity is present beyond background.

Thank you,

A handwritten signature in black ink, appearing to read "Bryan Harnett", with a stylized flourish at the end.

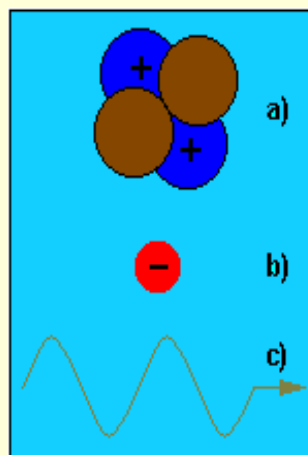
Bryan Harnett, DVM, DACVIM

Practice and Regulations for the Safe Use of Radioactive Materials

October 23, 2012

What is radioactivity?

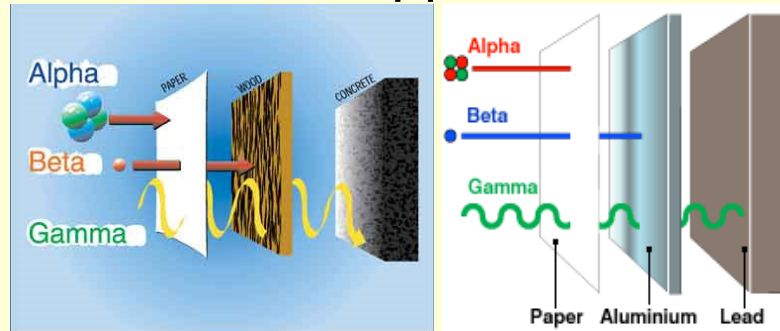
An atom that has excess energy in nucleus and releases that energy in the form of gamma radiation, beta radiation, or alpha radiation (plus a couple of other options)



Only example that we care about is Radon gas

Radiation:
a) alpha
b) beta
c) gamma

How are these radiations stopped?



Two illustrations to show different materials. Alpha particles are stopped easily and Are not of concern except when immediately adjacent to living cells..e.g. radon in lungs. Electrons are stopped in a few cm of materials

Iodine 131 decay info

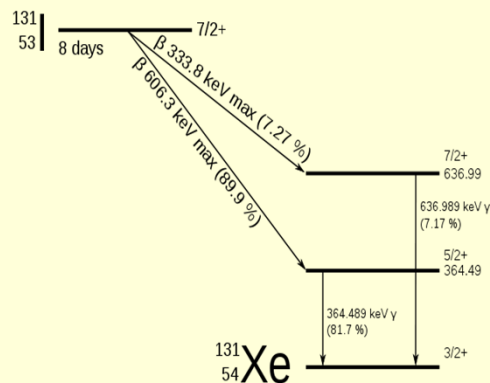
Decays by emitting beta particles (electrons) and gamma rays

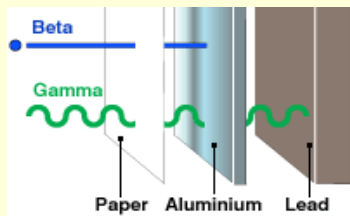
Another characteristic of radioactivity is the half life, which is how long to decay to $\frac{1}{2}$ of initial activity.

I-131 is 8 days, which means every 8 days is $\frac{1}{2}$ of what it started with

Example: After 40 days (5 x 8 days) the remaining activity would be

$$\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{32} \text{ of the initial activity.}$$



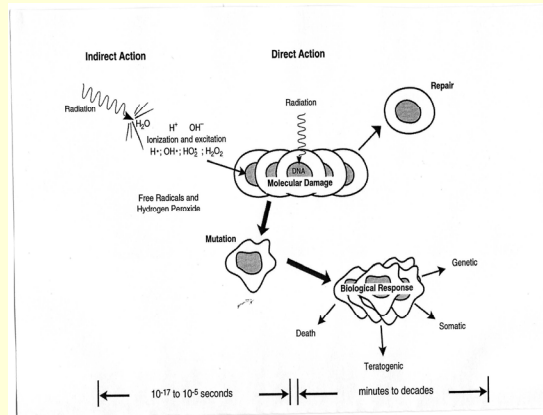


- The primary emissions of ^{131}I decay are
 - beta particles with a maximal energy of 606 keV (89% abundance) The beta particles, due to their high mean energy have a tissue penetration of 0.6 to 2 mm **These are what causes the cell damage, and thus successful treatment**
 - and 364 keV gamma rays (81% abundance) **These are what are the radiation safety concern**

- We measure the intensity of radiation exposure in
 - Grays (S.I.) or Rads (common)
 - often in millirads (1/1000 rad)
 If this value is corrected for biological effectiveness
 - Rads x factor = Rems (or millirems)
 which is unit used for film badge readings)

Why do we care?

- Most important reason is that radiation exposure, at high levels, has been shown to cause cancer.



ALARA

- As
- Low
- As
- Reasonably
- Achievable

Operating philosophy that license must make every effort restrict exposures to staff and public

What radiation exposure might you receive...first consider background Radiation

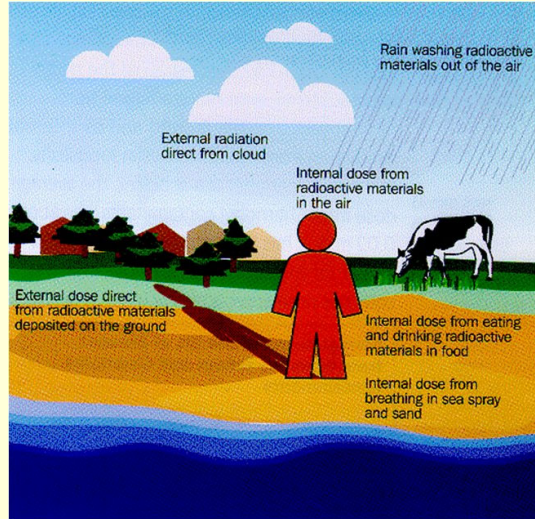
Accounts for approx 300 millirem per year.

Of this, 200 millirem is attributed to radon gas

Remaining 100 millirem is from

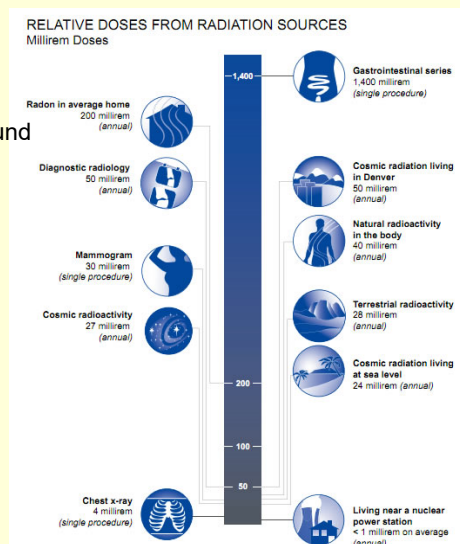
- radioactivity in soil
- cosmic radiation
- radioactivity in foods

Note that this results in about 10 millirem per month that would be registered on a film badge if not zeroed out.



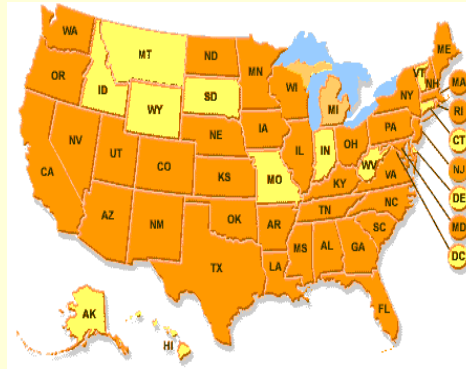
Comparison of doses received from common activities

Note that background varies depending on location in US



Licenses for Use of Radioactive Materials

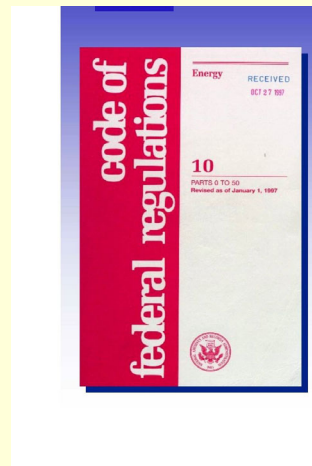
- Issued by the Nuclear Regulatory Commission
- States have entered into agreements with NRC to function as licensing agency (Agreement States) The state must ensure that all NRC regs are followed, but may be more restrictive in some areas.
- Issued to an institution with individuals named as Authorized Users



States in orange are "agreement" states

Regulations

- Regulations are set forth in 10 Code of Federal Regulations
- Primarily Parts 19, 20 and 35, which are available on line



Monitoring Occupationally Exposed Personnel

- Required if surveys or historical records demonstrate likelihood of exceeding 10% of the MPD
- Practically: Anyone who handles radioactive material will be issued a film badge and ring badge

Radiation Dose Limits

These are set in law by the NRC and state regulatory agencies

- Occupational per year
 - Whole body 5000 mrem
 - Individual organ 50000 mrem
 - Lens of eye 15000 mrem
 - Skin or extremity 50000 mrem (ring badge)
 - Minor 10% adult limits
- Do not include background or personal medical

Declared Pregnant Worker

occupationally exposed woman has notified the
Radiation Safety Officer that she is pregnant

- Embryo/fetus 500 mrem in 9 months/ 50
 millirem per month
- Usually determined by issuing a separate badge to be
worn at abdomen level

Do not include background or personal medical

Dose Limits

- Non occupational
 - Members of the general public are not
monitored to verify compliance. Rather, areas
are designed to meet these limits, controls are
enacted, and surveys are performed to
monitor.

Individual member of public	100 mrem/year
Exposure rate	2 mrem/hour

Personnel Monitors



- Film badges are worn on the torso, facing out, exchanged monthly or in low exposure, quarterly.
- Ring badges are TLD dosimeters. Worn on hand that likely to get highest reading. Should be palm in.



Film badge holders have a number of different filters built in. Because radiation is attenuated at a different rate by different materials, this allows a determination of the approx energy of the radiation.

- Wear a film badge on the trunk and TLD ring badge on the hand likely to receive the highest exposure, typically the dominant hand. Ring badges are to be worn whenever handling radioactive material or the injected cat.



ACCOUNT NO.		SERIES		PROCESS NO.		REPORT DATE		DOSEMETER		REPORT DATE		PAGE		QUALITY CONTROL RELEASE	
800000		AA1		S12345		2/18/94		2/14/94		5		1		ABC	

Accredited by the National Institute of Standards and Technology through

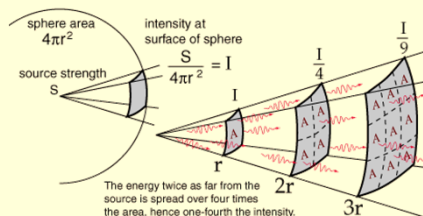
RADIATION DOSIMETRY REPORT

NAME	PARTICIPANT NUMBER	TYPE OF RECORD	DOSEMETER TYPE	SOURCE	NOTES	DOSE EQUIVALENT (mREM) FOR PERIODS SHOWN BELOW			ACCUMULATED DOSE EQUIVALENT (mREM)			ACCUMULATED DOSE EQUIVALENT (mREM)			INSCRIPTION DATE	DATE OF LAST AMENDMENT	AMENDMENT FOR YEAR	ID NUMBER	BIRTH DATE	MO	DAY	YEAR
						DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE	DEEP DDE	EYE LDE	SHALLOW SDE								
FOR MONITORING PERIOD: 01/01/94 - 01/31/94																						
CONTROL	00A1	G				M	M	M	M	M	M	M	M	M	M	1/80	1					
CONTROL		B				M	M	M	M	M	M	M	M	M	M	5/94						
CONTROL		C				M	M	M	M	M	M	M	M	M	M	1/90						
WASHINGTON G.	00001	WHL BODY	G		SEE DL	M	M	M	M	M	M	M	M	M	M	1/90	1	111111111	M	01/01/41		
ADAMS J.	00002	WHL BODY	G		PL	100	110	120	180	110	120	100	110	120	1/90	1/93	1	222222222	M	01/02/42		
JEFFERSON T.	00003	WHL BODY	G		PM	100	100	100	100	100	100	100	100	100	1/90	1/90	1	333333333	M	01/03/43		
WADSON J.	00004	WHL BODY	CALC		PH	80	80	80	80	80	80	80	80	80	8/90		1	444444444	M	01/04/44		
MOHRDE J.	00005	WHL BODY	G		B	M	M	200	M	M	200	M	M	200	8/90		1	555555555	M	01/05/45		
ADAMS J. G.	00006	WHL BODY	G		PH	100	100	200	100	100	200	100	100	200	3/93		1	666666666	M	01/06/46		
JACKSON A.	00007	WHL BODY	B		B	100	100	100														
YANBUREN M.	00008	WHL BODY	B		PH	80	80	80	80	80	80	80	80	80	8/94		1	777777777	M	01/07/47		
	00009	WHL BODY	B		PH	150	150	150	200	200	200	200	200	200	5/94		1	888888888	M	01/08/48		
	00010	WHL BODY	B		PH	50	50	50														
BUCHANAN J.	00011	ASSIGNED				PL	1000	1100	1200	1000	1100	1200	1000	1100	1200	3/97	1	900000000	M	01/10/98		
	00012	CHEST	K			PL	100	110	120							3/97						
	00013	COLLAR	K			PL	1000	1100	1200							3/97						
	00014	WHL BODY	G			PH	100	100	100	180	1000	1600	180	1000	1600	6/95	1	000000013	M	01/13/93		
FILLMORE M.	00015	ASSIGNED			SEE DL	PH	100	100	100								1					
	00016	CHEST	K			PH	100	100	100							6/95						
	00017	COLLAR	K			PH	1000	1000	1000							6/95						
POLK J.	00018	WHL BODY	G		ABSENT											6/95	1	000000011	M	01/11/91		
TAYLOR Z.	00019	WHL BODY	G		UNUSED											6/95	1	000000012	M	01/12/92		

NOTES DESCRIPTION:
DL - CONTROL PACKET MISUSED

Reduction of Exposure

- Time
- Distance
- Shielding



Inverse Square

- Example:
What would be the reduction in exposure rate if approx 4 mR/hour at 0.5 meters by moving to 2 meter distance

$$\frac{x \text{ mR/hour}}{4 \text{ mR/hour}} = \frac{(0.5)^2}{(2)^2} = .0625$$

$$.0625 \times 4 \text{ mR/hour} = \mathbf{0.25 \text{ mR/hour}}$$

- All radioactive material must be stored in shields. Use syringe shields for administration of radiopharmaceuticals.
- Note also that disposable gloves must be worn and changed if contamination is suspected.



A lead apron is **0.5 mm** lead equivalent

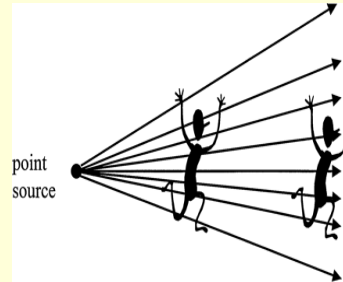


- Thickness of lead to attenuate 95% of photons:
 - Diagnostic x rays: 0.5 to 0.65 mm
 - I-131 gammas: 10 mm which is 20 aprons!

DO NOT wear lead apron when using I-131..little benefit and slows you down!

Typical exposure rates:

- If you assume 20 mCi of I-131 is present in the cats post treatment, the exposure rate at
- $\frac{1}{2}$ meter ~ 16 mR/hour
- 1 meter is ~ 4 mR/hour
(inverse square use of distance)
- *So for $\frac{1}{2}$ meter for 15 minutes would be 4 mR*



Minimize Time and Maximize Distance!



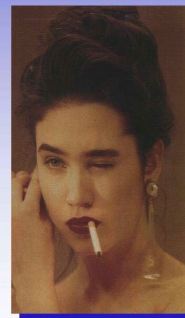
Staff should minimize the time spent in close proximity (less than two meters) from the patient.



- Lab Coats
- Gloves
- Fume Hood

- Appropriate protective covering must be worn when working with unsealed radioactive material. In general, this means wearing a lab coat and nonporous gloves to minimize the possibility of exposure from contamination. Wear disposable gloves at all times when handling radioactive materials, including for injections.

A fume hood is needed if I-131 not kept in containers (e.g. in the syringe) since it is volatile.

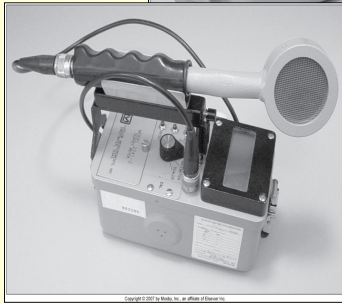


- Don't Drink
- Don't Eat
- Don't Smoke
- No cosmetics

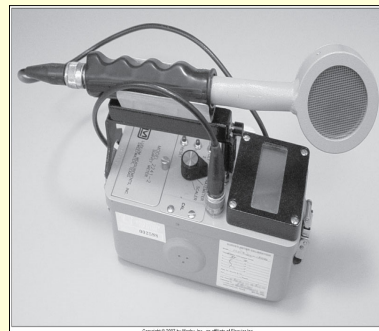
Survey Equipment for radioactive materials



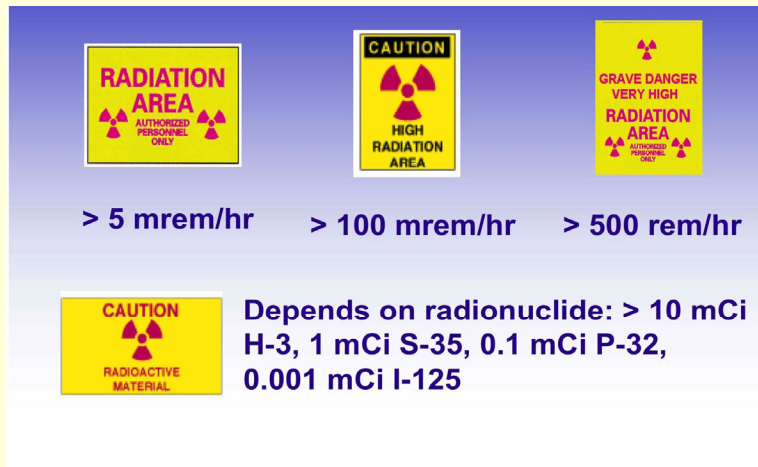
- GM Survey Meters
- Have high sensitivity
 - Used for contamination surveys



- Before leaving the area or eating, wash hands and monitor your hands for contamination either with a GM survey meters



Posting requirements and signs to use



Room need not be posted if under direct control and activity is present on temporary basis

- Keep all radioactive solutions in shielded containers that are clearly labeled with the radionuclide, name of compound, date and time of receipt or preparation.



- Dispose of radioactive waste only in the designated bins in or in designated shielded needle boxes. If there is the possibility that an item is contaminated, check it before placing in regular waste. Deface all radioactive symbols prior to disposal except for items placed in needle boxes.
- If returning shipping containers with no rad material, turn over the shipping label.

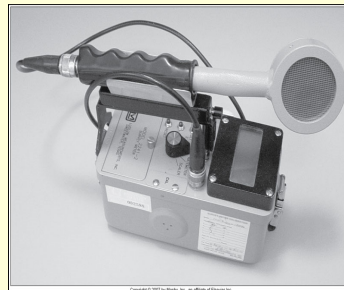


Disposal of Radioactive Waste

Rad waste is disposed of by "decay in storage"

If material has a half life of less than 120 days may store until levels are less than twice background when surveyed with a sensitive radiation detector, such as a pancake chamber GM detector

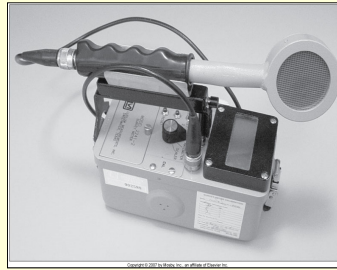
This is the method used for disposal of contaminated litter.



An area that is open to members of the general public e.g. the open space/corridor or where non occupationally exposed persons work

▲ - Callaway Plant Site in Missouri and Grand Gulf Plant Site in Mississippi are under the purview of Region IV. The Portsmouth Gaseous Diffusion Plant in Ohio is under the purview of Region II.

- Perform exposure rate surveys daily and wipe tests weekly in accordance with the protocol found under surveys. If unusual levels or contamination is found, secure the area or decontaminate as necessary. Record all results, including follow-up surveys.



Pancake probe on GM provides high sensitivity for detection of contamination (Daily at end of day)



Papers with label area that may be used for wipe tests (Weekly)