

Section 10

Area Classification and Posting

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Warning signs and labels for Radioactive Materials and Radiation Areas are an important part of a successful radiation safety program. Proper posting promotes safe storage, use, and disposal of radioactive materials, as well as worker safety. All signs and labels should be obvious to anyone approaching the container or area, and easily read without risk to the observer. All postings using the conventional three-blade radiation symbol are required to have the symbol colored magenta, purple, or black on a yellow background. The following is a list of required postings, as well as where and when they are appropriate.

A. “Notice to Employees, DOH Form RHF-3”

Department of Health (DOH) Form RHF-3, “Notice to Employees” must be posted wherever individuals work or frequent and there is a likelihood of a radiation hazard. This includes radiation hazards from either radiation producing machines or radioactive materials.

 STATE OF WASHINGTON NOTICE TO EMPLOYEES 	
Employer <u>University of Washington</u>	<div style="text-align: center;">  </div> Radioactive Materials License Number(s) WN- <u>C001-1</u> X-Ray Registration Numbers: <u>03641 to 03647</u>
In the Radiation Control Regulations, the Department of Health has established Standards for your Protection against Radiation Hazards	
YOUR EMPLOYER'S RESPONSIBILITY: Your employer is required to: <ol style="list-style-type: none"> Apply these regulations to work involving sources of radiation. Post or otherwise make available to you a copy of the Department of Health regulations, licenses and operating procedures which apply to work you are engaged in, and explain their provisions to you. These documents may be found and examined at: <u>201 Hall Health Center, University of Washington, Seattle, WA.</u> Post each Notice of Noncompliance involving radiological working conditions, proposed imposition of civil penalties and orders. These types of documents may be examined at: <u>Same location as listed above.</u> Provide adequate radiation safety training to you, including training in the use and handling of radiation producing devices, as appropriate. 	<ol style="list-style-type: none"> If you receive an exposure in excess of any applicable limits, your employer must give you a written report within 30 days of learning of the overexposure. The basic limits for exposures to employees are set forth in WAC 246-221-010, 246-221-050, and 246-221-055 of the regulations. Upon termination of your employment, you may ask for a written report of your exposure during the current year up to the date of termination. This may be an estimate as long as it is identified as such.
YOUR RESPONSIBILITY AS A WORKER: You should familiarize yourself with those provisions of the Department of Health regulations, and the operating procedures which apply to the work you are engaged in. You should observe their provisions for your own protection and protection of your co-workers, patients (if any) and the public.	INSPECTIONS: All licensed or registered activities are subject to inspection by the Department of Health or its duly authorized representatives. In addition, any worker or representative of workers who believes that there is noncompliance with Chapter 70.98 RCW, the regulations issued thereunder, or the terms of the employer's license or registration with regard to radiological working conditions in which the worker is engaged, may request an inspection by sending a notice of the alleged noncompliance to the Department of Health. The request must set forth the specific grounds for the notice, and must be signed by the worker or the representative of the workers. During inspections, Department inspectors may confer in private with workers, and any worker may bring to the attention of the inspectors any past or present condition which he or she believes contributed to or caused any noncompliance as described above.
WHAT IS COVERED BY THESE REGULATIONS? <ol style="list-style-type: none"> Limits on exposure to radiation and radioactive material in restricted and unrestricted areas; Measures to be taken after accidental exposure; Personnel monitoring, surveys and equipment; Caution signs, labels, and safety interlock equipment; Exposure records and reports; Options for workers regarding Department inspections; Performance standards for x-ray equipment; and Other related matters. 	INQUIRES: Inquiries dealing with radioactive materials may be directed to the Department of Health, Radiation Protection, P.O. Box 47827, Olympia, Washington 98504-7827, Telephone (360) 753-4481. Inquiries dealing with radiation producing machines and facilities may be directed to the Department of Health, Radiation Protection, 1511 3rd Avenue, Melbourne Tower Bldg - 7th Floor, Seattle, WA 98101; Telephone (206) 464-6840.
YOUR RADIATION EXPOSURE HISTORY: <ol style="list-style-type: none"> Your employer must advise you annually of your exposure to radiation. 	
POSTING REQUIREMENT Copies of this notice must be conspicuously posted in a sufficient number of places where employees are engaged in activities licensed or registered pursuant to Chapter 246-224 WAC and Chapter 246-235 WAC, by the Department of Health, Radiation Protection, to permit employees working in or frequenting any portion of a restricted area to observe a copy on the way to or from such an area.	
DOH 321-011 (Rev. 11/93)	"RHF-3"

EMERGENCY PROCEDURES

RSO Form 38 (12/96)

MUST BE POSTED IN EACH CERTIFIED LABORATORY IN A CONSPICUOUS LOCATION

Emergency Phone Numbers: (Fill in)

Radiation Safety Officer **543-0463**

After hours, call University Police **543-9331**

Ask them to call EH&S Duty Officer. Give them your name and number.

Someone will call you back.

Authorized Investigator (Name & Home Phone) _____

Lab's Radiation Safety Agent (Name & Home Phone) _____

Radionuclides in Use: (Circle radionuclides being used in lab) (ALI = Annual Limit on Intake)

GROUP I ALI > 10 mCi	GROUP II 1 mCi < ALI ≤ 10 mCi			GROUP III 0.1 mCi < ALI ≤ 1 mCi		GROUP IV 0.01 < ALI ≤ 0.1 mCi
H-3	C-14	Mn-54	Mo-99	Na-22	Sr-89	Sr-90
F-18	Na-24	Fe-55	In-111	P-32	Cd-109	I-125
Cr-51	P-33	Co-57	I-123	Cl-36	Ag-110m	I-131
Cu-64	S-35	Co-58	Hg-197	Ca-47	Cd-115m	
Tc-99m	K-42	Ga-67	Au-198	Fe-59	Ir-192	

MAJOR SPILLS: Group I > 10 mCi / Group II > 1 mCi / Group III > .1 mCi / Group IV > .01 mCi

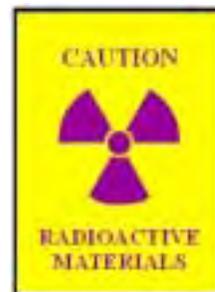
1. **CLEAR THE AREA.** Notify all persons not involved in the spill to vacate the room.
2. **PREVENT THE SPREAD.** Cover the spill with absorbent pads or diatomaceous earth, but do not attempt to clean it up. Confine the movement of all personnel potentially contaminated to prevent the spread.
3. **ISOLATE THE SOURCE.** If necessary, the source should be shielded only if it can be done without

D. “Caution, Radioactive Materials” (sign or label)

1. Where Posted

a. Room or Area

Any space in which radioactive materials or radiation sources are used or stored. These areas include, but are not limited to, laboratories, cold rooms, counting rooms, animal rooms, refrigerators/freezers, cabinets, and hoods.



b. Container

Any vessel, open or closed, in which radioactive materials are used or stored.

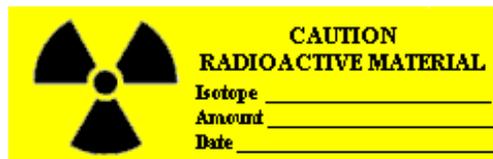
2. When Used

This sign should be used at all times, except for:

- **Rooms or Areas** in which containers will be attended and in which the containers will remain for short duration.
- **Rooms or Areas in hospitals** that are occupied by patients administered radiopharmaceuticals or permanent implants containing radioactive material, if the total effective dose equivalent to any other individual is not likely to exceed 0.1 rem (1 mSv).
- **Containers** that are in transport, and are packaged and labeled in accordance with the regulations of the Department of Transportation.

E. “Caution, Radioactive Material” (tape)

All **contaminated and/or hot areas and items** must always be labeled as radioactive, unless decontaminated to the background level.

**F. Refrigerators or Freezers**

Food and beverage intended for human consumption must not be stored in refrigerators or freezers used for the storage of radioactive materials. If food or beverage must be stored in a laboratory refrigerator or freezer, the refrigerator or freezer must be properly labeled to assure against the storage of non-compatible materials. These signs are available from the Radiation Safety Office.

1. “Only Food and Drink”

A sign bearing the words “Only Food and Drink” must be affixed to the door of any refrigerator or freezer used for the storage of food or drink within a laboratory. Radioactive materials or other hazardous materials must not be stored within a refrigerator or freezer bearing this sign.



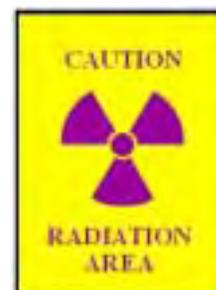
2. “No Food or Drink”

A sign bearing the words “No Food or Drink” must be affixed to the door of any refrigerator or freezer used for storing radioactive or other hazardous material within a laboratory. Food or drink must not be stored within a refrigerator or freezer bearing this sign.



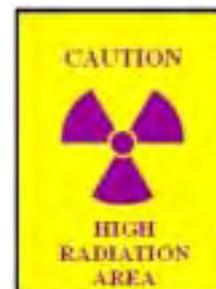
G. “Caution, Radiation Area” (sign or label)

A permanent sign bearing the words “Caution, Radiation Area” must be conspicuously posted in any area accessible to individuals, in which radiation levels could result in an individual receiving a **dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 cm from the radiation source or from any surface that the radiation penetrates.**



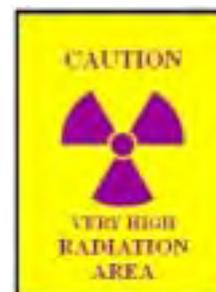
H. “Caution, High Radiation Area” (sign or label)

A permanent sign bearing the words “Caution, High Radiation Area” must be conspicuously posted in any area accessible to individuals, in which radiation levels could result in an individual receiving a **dose equivalent in excess of 0.1 rem (1 mSv) in 1 hour at 30 cm from the radiation source or from any surface that the radiation penetrates.**



I. “Grave Danger, Very High Radiation Area” (sign or label)

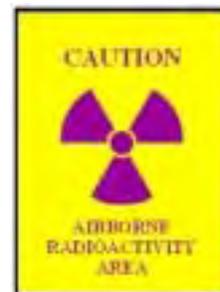
A permanent sign bearing the words “Grave Danger, Very High Radiation Area” must be conspicuously posted in any area accessible to individuals, in which radiation levels could result in an individual receiving an **absorbed dose in excess of 500 rads (5 Gy) in 1 hour at 1 meter from a radiation source or from any surface that the radiation penetrates.**



J. “Caution, Airborne Radioactivity Area” or “Danger, Airborne Radioactivity Area” (sign or label)

A permanent sign with the words “Caution, Airborne Radioactivity Area” or “Danger, Airborne Radioactivity Area” must be conspicuously posted in any room, enclosure, or operating area in which radioactive materials exist in concentrations:

- In excess of the derived air concentrations (DAC) specified in WAC 246-221-290, Appendix A.
- To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC-hours.



References:

- Washington Administrative Code (WAC 246-220, 221, 240)
- Code of Federal Regulations part 20 (10 CFR 20.1003, 20.1902, 20.1904)