

Portland Community College (PCC) Radiation Safety Program Guide

Purpose

This guide defines Portland Community College's Radiation Safety Program as required by Oregon Administrative Rules (OARs), Chapter 333, Division 100 through 120, and the conditions of College's Radioactive Materials License. The goal of the program is to allow for the safe use of radioactive materials for educational purposes and minimize the risk to faculty, staff, students, the environment, and community. The procedures in this guide are based on keeping the College's staff and student exposure to radiation As Low As Reasonably Achievable (ALARA).

Radioactive Materials Purchasing

PCC departments must receive approval by The Radiation Safety Officer (RSO) for purchases or donations of radioactive sources or equipment containing radioactive sources. This applies to sources that are subject to radioactive materials licensing or exempt from licensing. Exceptions include naturally occurring radioactive rock samples in an unprocessed form and readily available commercial devices such as smoke detectors and thoriated welding rods.

Radioactive Materials Transportation and Disposal

Radioactive materials may not be transported by PCC staff/employee on any College or public conveyance. Shippers of radioactive materials must have USDOT hazmat training per federal regulation 49 CFR 172.704. Radioactive materials must not be disposed of in the trash. All requests for disposal of radioactive materials must be submitted to the RSO. The RSO will maintain records showing the receipt, transfer, and disposal of all sources of radiation. Any drain disposal of radioactive materials must be approved by the RSO and be in accordance with local, state, and federal regulations. This section applies to licensed and exempt sources.

Radiation Safety Officer (RSO)

The Radiation Safety Officer/Assistant Radiation Safety Officer who is qualified by training and experience in radiation protection assures the College's compliance with state and federal radiation safety regulations. The Radiation Safety Officer develops and implements the College's Radiation Safety Program. The Assistant Radiation Safety Officer has full authority to execute the RSO duties in the absence of the Radiation Safety Officer.

Duties of the Radiation Safety Officer--General License

1. Ensure that all devices are listed on the license.
2. Ensure that devices are used only by authorized, trained individuals.

3. Ensure that devices are properly secured against unauthorized removal when not in use.
4. Serve as a point of contact between authorized users and management, and:
 - a. Provide assistance during emergency situations (device damage, fire, theft, loss, etc.).
 - b. Notify Public Safety and proper authorities (local police and state personnel, etc.) of an accident involving sources.
5. Ensure that licensed sealed sources are leak tested at the required intervals (6 months). Leak test records are kept in the radioactive materials license file.
6. Ensure that licensed sealed sources are inventoried and label condition reviewed at the required intervals (6 months). Inventory records are kept in the radioactive materials license file.
7. Represent the College during Oregon Health Authority, Radiation Protection Services inspections.
8. Maintain the required documents in the radioactive materials license file. All records will be maintained for five complete years.
9. Conduct radiation safety training for the College's faculty and staff.
10. Review the Radiation Protection Program annually to ensure compliance with Oregon Administrative Rules Chapter 333, Division 120, Rule 0020 (OAR 333-120-0020) and license conditions.

Radiation Protection Procedures—General License

The following radiation protection procedures will be followed at all times for licensed devices containing sealed sources. Sealed source means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions which are likely to be encountered in normal use and handling. Copies of these procedures are maintained in the radioactive materials license file.

1. General license devices shall only be used by, or under the supervision of, authorized users-faculty/staff. All authorized users are trained on the Radiation Protection Program and authorized as a user by the RSO.
2. Radioactive sources/cells shall not be opened or radioactive material removed. Direct handling of an unshielded source shall not be permitted. Report any discrepancies to the RSO.

3. Authorized users must follow general laboratory requirements for personal protective equipment. No specific personal protective equipment is required for using devices with sealed sources.
4. Eating, drinking, smoking, storage of food/ beverages, and applying cosmetics are prohibited in areas where radioactive materials are used or stored.
5. The door to the device storage area (if stored separately) or wall near the device or the device itself shall be posted with a CAUTION RADIOACTIVE MATERIALS sign. Signs can be obtained from the RSO.
6. A "Notice to Employees" and "Notice to Workers" stating the requirements of OAR 333-111-0005 shall be conspicuously posted in a general employee area and authorized user work area, respectively. Signs can be obtained from the RSO.
7. Authorized users shall keep the Radiation Safety Officer informed of the location of the radioactive sources. A log shall be maintained at the **primary storage location** which includes, but is not limited to, the following information: device manufacturer and model number, user, date of use, and location of use. Licensed sources can't be moved or removed from the authorized area without the permission of the RSO.
8. Access to licensed devices or secured areas shall be limited to authorized users; employees authorized to work in those areas (e.g. Custodians) or supervised individuals. The department supervisor shall verify with the RSO/Assistant RSO prior to approving keys for faculty/staff that those individuals are authorized to have access to secure areas containing licensed devices.
9. The following actions should be taken in the event of a suspected contamination, or exposure incident with licensed equipment.
 - a) The incident shall be reported immediately to the Radiation Safety Officer or Assistant Radiation Safety Officer. Call Public Safety at ext:4444 for any emergency situation including fire, injures, or if an evacuation is needed.
 - b) Have all persons not involved with incident to evacuate the room and secure the area.
 - c) Containment actions to stop any further contamination such as securing ventilation can be done if it is safe to do so.
 - d) Clean up and decontamination should be done under the direction of the Radiation Safety Officer.
 - e) In the event of an exposure incident to personnel, the procedures in Health & Safety Manual Chapter 2 Accident Investigation and Reporting should be followed.
 - f) The Radiation Safety Officer will report incidents to Oregon Health Authority in accordance with ORS 333-120-0700-0740.
10. Security of the licensed device shall be maintained at all times. Doors to rooms with a licensed device must be locked at all times when the room is not occupied by a trained, authorized faculty or staff. Call Public Safety at ext:4444 and the RSO in the event of a tampering, theft, or a missing device.

11. The Radiation Safety Officer shall ensure electronic access to the following divisions/rules on the Radiation Safety page of the College's intranet.
 - OAR's 333-100-0005 and 333-102-0102-0203 "Definitions"
 - OAR 333-102-0115 "Certain Measuring, Gauging, and Controlling Devices"
 - OAR-333-102-0305: "Specific Terms and Conditions of License"
 - OAR 333-102-0330 "Transfer of Material"
 - OAR 333-102-0335 "Modification, revocation and Termination of Licenses"
 - OAR 333-102-0345 "Special Procedures in Regulatory Review"
 - OAR 333-103-0010 "Fees"
 - OAR 333-111 "Notices, Instructions and Reports to Workers"
 - OAR 333-120 "Standards for Protection Against Radiation"
12. Leak testing of sealed sources is required at six month intervals or more often if damage is suspected. Records of leak test results shall be kept in units of micro curies (uCi) and maintained for inspection by the Oregon Health Authority, Radiation Protection Services. Leak testing is performed by the RSO. If contamination levels are equal or greater than .005 microcurie, the contaminated equipment must be immediately withdrawn from service. The manufacturer and the Oregon Health Authority, Radiation Protection Services will be informed.
13. A physical inventory of sealed sources/cells is required at six month intervals. Inventories must include the types and quantities of sealed sources/cells, sealed source/cell manufacturer, model number, serial number, date of receipt, condition of sealed sources/cells, and the date of the inventory. Records of inventories shall be kept and maintained for inspection by the Oregon Health Authority, Radiation Protection Services. The physical inventory is performed by the RSO.
14. Licensed sources/devices may not be repaired, modified, dismantled, or any change effected nor any affixed labels modified.
15. The manufacturer's instruction manual will be available for all devices containing licensed sources. Authorized users must follow the instructions in the manufacturer's manual.
16. The RSO shall annually review this radiation protection program content and implementation. Records of these reviews shall be kept and maintained for inspection by the Oregon Health Authority, Radiation Protection Services.

Radiation Monitoring

Under normal use of licensed and exempt radioactive sources at the College, occupational exposure to radiation is substantially below the occupational dose limits requiring individual monitoring devices as required by OAR 333-120-0210. No routine individual monitoring is currently conducted. In the event of an exposure incident the procedures in Health & Safety Manual Chapter 2 Accident Investigation and Reporting should be followed for employees seeking medical attention for an occupational injury or illness. The Radiation Safety Officer needs to be informed of all incidents.

Training

Radiation safety training will be provided faculty/staff commensurate with job responsibilities. Faculty/Staff training records will be maintained by the RSO.

- Faculty and staff who are authorized users of licensed devices are trained on the Radiation Protection Program and authorized as a user by the RSO upon assigned to those duties and refresher training at 3 year intervals.
- Students participating in labs using licensed devices or in restricted areas with licensed devices receive training for their course instructor.
- Faculty/staff that must frequently enter or work in restricted areas with licensed devices receive awareness training from the RSO during new hire safety orientation and annual safety training.

Annual Review Documentation

The annual review of radiation safety protection was conducted by Elaine Hunter, Radiation Safety Officer on 06/202017. The training frequency was updated to include refresher training as required by OAR 333-111-0010(7).