

RADIOACTIVE WASTE MANAGEMENT PLAN

Copies of this plan will be made available to all members of the campus community with the potential to generate radioactive waste.

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I. Purpose

The purpose of this document is to present procedures to be followed in complying with federal, New York State and New York City regulations as they apply to radioactive wastes. This document compiles in one location many of the items necessary to document compliance. This document is also written to comply with the City University of New York's (CUNY) Environmental Health and Safety Policy Manual, specifically the Radioactive Waste Management Policy and Procedures. This document deals with radioactive waste only and is not intended to replace the York College Radiation Safety Manual, which deals with all aspects of radiation safety at York College.

II Regulatory Authorization

The management of radioactive wastes falls under the requirements of federal, state and city regulatory programs.

The Nuclear Regulatory Commission (NRC) administers the federal requirements for the management and shipment of radioactive wastes. the applicable federal regulations are:

- NRC – Title 10 Code of Federal Regulations, Part 20 (10 CFR Part 20);

In New York State the Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) have the authority to administer the radioactive waste management program.

The applicable New York State regulations are:

- NYSDOH – Title 12 New York Codes Rules & Regulations, Part 38 (12 NYCRR Part 38);
- NYSDEC – Title 6 New York Codes Rules & Regulations, Part 380 (6 NYCRR Part 380)

In New York City the Department of Health (NYCDOH) has the authority to administer the radioactive waste management program. The applicable New York City regulations are:

- NYCDOH – Regulations City of New York, Chapter 175 (RCNY – Chapter 175).

III Responsibilities

York College administrators, faculty, staff, students, contractors, and other parties who handle or generate radioactive wastes are required to properly handle, store, and label radioactive wastes and to comply with applicable federal, state, and city regulations. All who use or handle radioactive wastes are responsible to follow the policies and procedures set forth in this Radioactive Waste Management Plan. It is the responsibility of all to see that radioactive wastes are managed in a safe, healthy, and environmentally sound manner. The Environmental Health & Safety Officer (EHSO) and campus administration are responsible to ensure that all appropriate parties comply with these requirements.

Under federal, state, and city regulations, generators of radioactive waste are accountable for the management of these wastes. Civil and criminal penalties may result from failure to comply with these requirements. At York College, generators of radioactive wastes may be academic facilities such as laboratories as well as other operations. While York College is responsible for maintaining compliance, department heads, supervisors, faculty members, staff personnel, or students, could have individual liability in the event of a violation of regulatory requirements. Federal, state, or city environmental and health care personnel have the authority for the inspection of laboratories and other related locations for compliance with applicable regulatory requirements at anytime.

Within the CUNY/York College system the following general responsibilities are identified.

York College **President** is responsible for:

- Implementation of CUNY's Radioactive Waste Management Policy and Procedures at York College.

- Communicating the importance of these Radioactive Waste Management Policy and Procedures throughout the organization.

York College *Vice President for Finance and Administration* is responsible for:

- Providing adequate resources to help assure compliance with radioactive waste regulations and CUNY's Radioactive Waste Management Policy and Procedures.
- Tracking and reviewing radioactive waste compliance performance.

York College **Radiation Safety Committee**

The Radiation Safety Committee (RSC) is responsible for:

- Ensuring that employees who work with or who may receive a workplace exposure to ionizing radiation within their reporting units are trained to perform their tasks in an efficient and competent fashion and are provided instruction regarding the impact their activities can have on the environment if performed incorrectly.
- Ensuring that all use of radioactive materials and radiation-producing equipment is conducted in a safe manner and in accordance with federal, state and local regulations and the conditions of York College's license.
- Reviewing York College's Radioactive Waste Management Plan at least annually to determine that activities are being conducted safely and in accordance with applicable regulations and conditions of the license.
- Monitoring York College's program to maintain releases of radioactive materials to the environment as low as reasonably achievable (ALARA) and in accordance with 6 NYCRR Part 380.
- Review and approval of the purchase of radioactive nuclides for use at York College.
- Requesting the Radiation Safety Officer (RSO) to provide a summary of radioactive waste activities for each meeting.
- Ensure that the RSO is maintaining all conditions of the Radioactive Materials License.

Radiation Safety Officer

The RSO administers the Radioactive Materials License (issued by the New York City Department of Health, Bureau of Radiological Health) maintains the storage, shipping, and other related records; ensures compliance with reporting requirements; provides consultation on radioactive waste issues; and coordinates the disposal of all radioactive waste generated at York College.

It is the responsibility of the RSO to coordinate disposal services for radioactive waste in order to meet federal, state, and local regulations and conditions of the license. These requirements include documented and informed decision-making to ensure that proper waste classification and disposal procedures are followed.

The York College RSO is responsible for:

- Determining compliance with applicable regulations and License conditions.
- Overseeing the receiving, opening and delivering of all shipments of radioactive material arriving at York College.
- Coordinating, managing and maintaining accurate recordkeeping of radioactive waste storage and disposal at York College.
- Providing and documenting appropriate training for workers, ensure that all applicable safety rules and radioactive waste management procedures are followed and that appropriate PPE and monitoring devices are available, in working order, and appropriately used.
- Assuring that efforts are made to maintain discharges of radioactive materials to the environment as low as reasonably achievable and monitoring these releases as applicable.

- Conducting routine inspections in accordance with the York College Radiation Safety Manual of areas that use or store radioactive materials or waste to ensure proper management of radioactive waste and to prevent accumulation of old, unused, and abandoned radioactive materials. Documentation of such inspections is to be maintained by the RSO.
- Working with campus radioactive waste generators to develop and implement appropriate radioactive waste disposal procedures and waste minimization strategies for their specific areas.
- Consulting and providing training on proper practices for the purchase, storage and disposal of radioactive materials and identified radioactive waste.
- Understanding the legal requirements regarding radioactive waste and providing training and consultation on these regulations to York College waste generators.
- Ensuring that this York College Radioactive Waste Management Plan is reviewed periodically and that it is revised and updated as necessary.
- Providing guidance and technical assistance for Radiation Supervisors and Radioactive Material Users.
- Terminating any project that is found to be a threat to health, property or the environment.
- Managing on site disposal of radioactive waste materials through decay in storage to a non-hazardous state.



Revision Number: 0
EHS Radioactive Waste Management Plan
Revision Date: December 19, 2003

Radiation Supervisors (Permit Holders)

The Radiation Supervisor has direct oversight of daily waste operations in the work area.

Radiation Supervisors are responsible for:

- Conducting ongoing, on-site training for faculty, staff, and students to ensure that radioactive waste disposal guidelines in York College's Radioactive Waste Management Plan are followed.
- Providing regular inspections of the area to ensure that radioactive waste has been properly identified, labeled, segregated, and stored for collection and disposal by the RSO.
- Routinely conducting radioactive contamination surveys in the radioisotope usage and storage areas.
- Understanding the current legal disposal requirements and procedures for regulated materials generated under their purview.
- Arranging radioactive waste transfers for the area to the radioactive waste storage room LF04 and working in cooperation with the RSO to ensure that disposal is safely and completely performed.
- Immediately notifying the RSO if problems with waste management develop.

Radioactive Material Users

All York College employees and students who use radioactive materials have the following responsibilities to:

- Read and understand York College's Radiation Safety Manual.
- Read and understand York College's Radioactive Waste Management Plan.
- Actively participate in York College's waste minimization program by conducting their work in a competent and efficient fashion to minimize potential adverse environmental impacts resulting from their work; and suggesting practices or procedures to enhance waste minimization efforts in their work areas.
- Understand the properties, health risks, and precautions required for handling each radioactive material.

- Attend a semiannual Radiation Safety Course and pass the written examination.
- Become familiar with available data concerning radioisotopes; use reference books, articles, and York College's Radiation Safety Manual.
- Select and use all appropriate personal protective equipment (PPE - gloves, goggles, lab coat, etc.), personnel monitoring (film badges, ring dosimeters, etc.), and other safety equipment required to safely work with radioactive materials.
- Plan the activity/experiment to consume, to the extent feasible, all radioactive materials and to minimize the amount of radioactive waste produced.
- Conduct "dry runs" without radionuclides to test procedures and chemistries before working "hot".



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EHSO

It is the responsibility of the manager or director of the EHSO to:

- Read and understand federal, state, and city laws, rules, and regulations relating to radioactive waste and stay current with changes in the laws, rules, and regulations.
- Regularly inspect areas where radioactive wastes are stored to ensure that radioactive wastes have been properly identified, labeled, segregated, and stored for collection and disposal.
- Be aware of the current legal requirements concerning radioactive waste disposal and to contact the CUNY Office of General Counsel when questions arise.
- Assist the RSO in arranging for the pickup of radioactive waste. The EHSO must inspect facilities and records, ensure that disposal is safely and completely performed, and ensure that documentation is prepared and maintained (as may be required by law, regulation, or CUNY and the York College policies and procedures).

Dormitory Authority State of New York (DASNY)

DASNY also has responsibility for radioactive materials and waste that it and its contractors encounter, or have the potential to encounter, for activities that DASNY performs on campus:

- Coordination with the EHSO campus and the RSO to evaluate implications of activity; establish specific responsibilities with respect to project.
- Planning for removal of radioactive materials and waste in accordance with CUNY's Radioactive Waste Management Policy and Procedures, and York College's Radioactive Waste Management Plan. Prepare a written protocol to address radioactive materials and waste, unless specifically directed otherwise in writing by York College's EHSO and RSO.
- Management of radioactive materials and wastes in accordance with York College's Radioactive Materials License and applicable federal, state, and city laws and regulations, and the written approval of York College's EHSO and the RSO, either or both of whom may be involved in direct oversight of any activities.
- Documentation of the management of radioactive materials and wastes by DASNY in writing and presented to both the EHSO and the RSO.

IV. Radioactive Waste Management

York College has developed, documented and implemented a Radiation Safety Manual. The program consists of the following elements:

- procedures and engineering controls to achieve doses that meet ALARA;
- provides for a RSO;
- establishes a RSC;
- established a personnel training program;
- established a safety monitoring program;
- identifies emergency procedures;
- establishes a Quality Assurance Program;

- reviewed the Radiation Protection Program Policy and Procedure Manual at least every 12 months; and
- published a Radiation Safety Manual document.

Handling radioactive materials and wastes require the use of proper laboratory safety procedures. York College's Radiation Safety Manual should be consulted for appropriate procedures, including the use of personal protective equipment (PPE). Copies of the Radiation Safety Manual are provided throughout the campus. If a copy is not available, contact the RSO or the EHSO.

A. General radioactive waste management

Safety Measures

The general safety measures listed below should be followed when working with radioactive materials or wastes:

- Wear laboratory coats or other protective clothing at all times in areas where radioactive materials and/or wastes are used or present.
- Wear disposable gloves at all times while handling radioactive materials and/or wastes.
- Monitor your hands for contamination in low-background area after each procedure or before leaving any area.
- Do not eat, drink, smoke, or apply cosmetics in any area where radioactive material and/or waste are stored or radioactive materials are used.
- Do not store food, drink, or other items in areas where radioactive material is stored or used or where radioactive waste is stored.
- Wear required personnel monitoring devices at all times while in areas where radioactive materials and/or waste are used or stored.
- Dispose of radioactive waste only in designated, labeled and properly shielded receptacles.
- Store radioactive solutions in CLEARLY labeled containers.
- Secure all radioactive material and/or waste when not under the constant surveillance and immediate control of the authorized users and their staff.

B. Radioactive waste packaging and labeling

All radioactive waste must be segregated with half-life categories.

Classification – Classify waste into Class A, Class B or Class C

- Class A** – Class A wastes are those with short half-lives (^{32}P ^{131}I)
- Class B** – Class B wastes are wastes with reasonably short half-lives (^{35}S ^{125}I ^{45}Ca)
- Class C** – Class C wastes are wastes that have long half-lives and must be handled by a commercial service.

Storage of radioactive waste in working laboratories is to be kept to a minimum. Waste should be regularly transferred to the radioactive waste storage room, LF04, as soon as practical.

Segregation - Segregate radioactive waste intended for transport off-site to the extent practicable prior to placement in containers.

Container requirements - Regulated waste must be placed in containers which are:

- closable;
- do not overfill;
- DO NOT** use cardboard or fiberboard;
- liquid radioactive waste must be sent to the radiation safety storage room, LF04; and
- hazardous, infectious, or pathological wastes exhibiting radioactive characteristics should be sent to the radioactive waste storage room, LF04.

Shipping - The RSO will survey the outside of the containers to ensure radiation levels are acceptable for shipping.

Labeling requirements - Generators must label radioactive wastes according to the following requirements before transporting or offering for transport such waste off-site.

- use a radioactive material label;
- include name, location, and telephone number of laboratory;
- identify the type of waste;
- list the quantity of waste;
- include the date on which quantity was determined;
- list the isotopes present; and
- the hazardous or biological materials present.

Decontamination standards for reusable containers - Generators must comply with the following requirements with respect to reusing containers:

- All nonrigid packaging and inner liners must be managed as radioactive waste and must not be reused.

- Any container used for the storage and/or transport of radioactive waste and designated for reuse once emptied must be decontaminated if the container shows signs of contamination.
- If any container used for the storage and/or transport of radioactive waste is for any reason not capable of being rendered free of any visible signs of contamination, the container must be managed (labeled, marked and treated and/or disposed of) as radioactive waste.

C. Radioactive waste pickup procedures

Before requesting a radioactive waste pickup, make sure you have followed the procedures previously discussed regarding container selection, labeling, handling, and storage of radioactive waste. Make sure containers are clean on the outside and have caps that are tightly closed, and are properly labeled. Call the RSO, Ext. 2304 with your pickup request or bring the waste to the radioactive waste storage room, LF04. Have the following information available:

- your name;
- phone number;
- department name;
- building;
- room number;
- the type and quantity of waste to be picked up;
- isotopes;
- size and condition of containers to be picked up; and
- physical state of the material.

A. Radioactive waste storage areas

The radioactive waste storage room is LF04, located in the Academic Core Building.

A. Radioactive waste disposal procedures

Radioactive waste may only be disposed by the RSO. No radioactive waste may be disposed of by laboratory sink or in the trash.

F. Radioactive waste treatment

Only decontamination in place may be used for treatment, and only by the RSO.

V. Inspections

The EHSO performs inspections of the radioactive waste storage area in compliance with USEPA and NYSDEC regulations.

VI. Accidents and Emergencies Involving Radioactive Materials

A spill or accident that results in an exposure incident must be immediately reported to the laboratory director or other responsible person.

If the spill is small, and there are no health or safety concerns, immediately take the steps or the written and posted emergency statement in the laboratory.

In the event of a radioactive waste spill or leak, the person discovering the release must alert all others in the room and immediately contact the RSO, Ext. 2304 or Campus Security at 718-262-2222. A written formal report must be placed on file for each release or emergency.

The EHSO or Security will direct and coordinate the spill clean-up activities and evaluate if a contractor will be required to perform the clean-up activities. The EHSO is responsible for the reporting requirements of RCNY – Chapter 175.

VII. Standard Operating Procedures

All personnel generating or handling radioactive waste must follow the procedures in the York College Radiation Safety Manual.

VIII. Training

General

York College personnel who generate radioactive waste are required to have training appropriate to their level of responsibility. This training will be provided initially at the time of their employment and the training will be documented. Special training will also be provided by the RSO upon request to personnel working in areas with unusual radioactive waste management requirements. Training for radioactive waste management on campus will be updated to reflect the most current regulatory requirements.

Special training

Individuals with specialized duties, and anyone with oversight responsibility for packaging and transportation of radioactive materials, are required to have additional training. Individuals who supervise or prepare radioactive materials for transport and/or sign tracking documents must complete course work that meets USDOT regulations. No York College personnel may arrange for disposal, transport, shipment or sign radioactive waste tracking documents without completing the appropriate training.

IX. Recordkeeping

Recordkeeping requirements are contained in the Radiation Safety Manual document.

X. Information and Contacts

City University of New York; Environmental, Health, and Safety Policy Manual
York College; Radiation Safety Manual
NRC Regulations; 10 CFR Part 20
NYSDOH Regulations; 12 NYCRR Part 38
NYSDEC Regulations; 6 NYCRR Part 380 *et seq.*
NYC Regulations; RCNY – Chapter 175

For further information or answers to questions contact the RSO at (718) 262 – 2304.