Radiation Safety Policy

Purpose

Federal and State of Michigan rules and regulations require Western Michigan University (WMU) to assure that exposure to radiation is ALARA (As Low As Reasonably Achievable). The Radiation Safety Policy sets forth the means by which the University complies with applicable rules and regulations. The Radiation Safety Policy further stipulates the duties and responsibilities for the development, implementation, and oversight to ensure the safe use of radiation.

This policy applies to all personnel in facilities or on property owned or controlled by WMU and utilizing radioactive materials or radiation producing devices.
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A. Sub-programs that comprise the Radiation Safety Program
I. Duties of those responsible for the Radiation Safety Program

A. The United States Code of Federal Regulations (CFR) and Public Acts of the State of Michigan require that WMU establish and enforce a written policy to govern activities using radioactive materials and/or radiation producing devices.

B. The President, Vice President for Research, and Associate Vice President for Research comprise WMU's Executive Management Team.

C. Executive Manager (Associate Vice President for Research)  [NUREG 1556 Vol 11 / License]

   1. The Executive Manager administers the Radiation Safety Policy and has been given the authority and means to:
      a. Make prompt decisions without having to consult with higher management, particularly in case of an emergency concerning radiation.
      b. To take whatever actions are necessary to ensure all radiation safety practices comply with the rules and regulations governing the use of radioactive material or radiation producing machines.

   2. Other duties and responsibilities that shall include, but are not limited to, the following:
      a. Participate in the Quality Control Program.
      b. Support the Radiation Safety Officer (RSO).

D. Radiation Safety Officer (RSO)  [NUREG 1556 Vol 11 / License]

   1. The RSO reports to the Executive Manager and is responsible for the development, maintenance, and enforcement of the WMU Radiation Safety Program.
      a. The RSO shall have access to all buildings and research where radioactive material or radiation producing devices are used or stored.
      b. The RSO has the authority to alter, modify, suspend, or terminate any use of licensed or registered material that in his judgement is a threat to the health and safety of the general public, WMU Authorized Users (AUs), Radiation Workers (RWs), or the environment due to violations of any rules, regulations, or conditions of our Nuclear Regulatory Commission Material Licenses or State of Michigan registrations governing our use of materials or devises.

   2. The RSO oversees the Radiation Safety Policy with duties and responsibilities that shall include, but are not limited to, the following:
      a. Ensure compliance with the rules, regulations, and procedures governing radiation and its use.
      b. Serve as a liaison between WMU and all regulatory agencies on matters pertaining to radiation.
      c. Direct the Quality Control Program.
      d. Direct the Radiological Control Program.

NOTE: Responsibility for these duties may not be transferred to other individuals. Tasks and duties may be assigned or delegated; however, the responsibility for these tasks and duties is the RSO’s.
e. Direct the Administrative Controls Program, including:
   1. Review and approve proposed uses, users, and rooms.
   2. Maintain all documentation required by the Radiation Safety Program.

f. Develop and implement the Radiation Safety Training Program.

gh. Direct the Source Inventory and Control Program.

h. Direct the Instrumentation and Dosimetry Program.
i. Direct the Radioactive Waste Program.

j. Direct the Transportation of Radioactive Material/Waste Program.

k. Direct and/or conduct the phases of corrective actions to prevent recurrence of
   incidents involving radiation or radioactive material.
   1. Investigate all identified conditions adverse to quality.
   2. Determine the causes of each incident.
   3. Develop corrective actions to prevent recurrence.
   4. Implement the prescribed actions.

l. Supervise and assign duties to personnel working in conjunction with WMU’s
   Radiation Safety Program.

m. Update and distribute the Emergency Plan information.

n. Notify the Nuclear Regulatory Commission, State Regulators, and the Executive
   Management team 30 days prior to termination of employment.

E. Authorized Users are approved by the RSO after verification of the individuals’ training and
   experience.  [10CFR33.17 / NUREG 1556 Vol 7]
   1. AU’s are responsible for complying with all rules, regulations, procedures, and policies
      that govern the use of radioactive material and radiation producing machines.
   2. AU’s also carry supervisory roles for their RWs and are responsible for their compliance
      with all rules, regulations, procedures, and policies that govern the use of radioactive material
      and radiation producing machines.
   3. AU’s comply the Radiation Safety Policy by carrying out their duties and responsibilities
      which shall include, but not limited to, the following:
      a. Participate in the Quality Control Program.
      b. Notify the RSO of any violations or deviations from the rules, regulations, procedures, and
         ALARA practices, or unusual events involving the use of radioactive material or exposure.
      c. Assist the RSO in investigating, determining the cause of, developing corrective action,
         and implementing actions to prevent recurrence of incidents involving radiation.
      d. Practice and promote ALARA (As Low As Reasonably Achievable) principles and
         standards.
      e. Ensure that individuals working under their direct supervision are properly supervised
         and trained to maintain ALARA and compliance with all rules, regulations, procedures, and
         policies that govern the use of radioactive material and radiation producing machines.
      f. Maintain an awareness of the regulations and requirements pertaining to the use of
         radioactive materials. Inform the RSO of any items that may be of interest to provide a safe
         working environment.
      g. Adhere to the requirements of the Radiation Safety Program procedures.
      h. Participate in the Training Program.
i. Maintain an inventory of radioactive material and waste located in the areas/rooms for which they are responsible.
   j. Adhere to the documentation requirements of the procedures and policies.
   k. Review the working conditions for ALARA considerations with an individual when informed the individual is or may be pregnant. Inform the RSO.
   l. Inform the RSO prior to absences of > two (2) weeks.
   m. Inform the RSO of any personnel changes under their supervision.

F. Radiation Workers are the individual users.  [10CFR33.17]
   1. They are the direct handlers of radioactive material and radiation producing devices.
   2. Have the primary responsibility for complying with the radiation safety rules and regulations.
   3. It is critical that they are aware of the risks, safe practices, and requirements for use of radioactive material and radiation producing devices.
   4. Radiation Workers meet the Radiation Safety Policy requirements with duties and responsibilities that shall include, but are not limited to, the following:
      a. Notify their AU and/or the RSO of any violations or deviations from the rules, regulations, procedures, ALARA practices, or unusual events involving the use of radioactive material or exposure.
      b. Adhere to the documentation requirements of the procedures and policies.
      c. Participate in the Training Program.
      d. Practice and promote ALARA (As Low As Reasonably Achievable) principles and standards.
      e. Obtain and wear assigned dosimetry during the use of radioactive material or radiation producing devices.
      f. Maintain an awareness of the regulations and requirements pertaining to the use of radioactive materials. Inform the RSO of any items that may be of interest to provide a safe working environment.
      g. Wear appropriate personal protective equipment according to the type of radioactive material and radiation producing device being used.
      h. Inform AU and RSO of any medical condition, including pregnancy that may preclude or alter their ability to work with or be in proximity to radioactive material and radiation producing devices.

G. Division of Environmental, Health, and Safety (EHS)
   1. EHS shall assist the RSO in fulfilling policy requirements by carrying out the following duties and responsibilities:
      a. Recovery from an emergency involving a loss of control of radiation or radioactive material.
      b. Transport of radioactive material, radioactive waste, and radiation producing machines.
      c. Providing a 24-hour per day emergency contact as required during transport of radioactive material/waste over public highways.
H. Organizational Structure

[License]

- President
- Vice President for Research
- Executive Manager (Associate Vice President for Research)
- Radiation Safety Officer

Authorized Users

Radiation Machine Radiation Workers

Radiation Workers

II. Consequences of non-compliance

A. Legal Consequences: [10CFR20.2401 / 10CFR33.21 / 333.5023]
   1. WMU is the licensee for a Nuclear Regulatory Commission (NRC) Materials License and any one individual or action that jeopardizes the ability to obtain and keep that license endangers the ability to conduct research using radioactive material. If, for any reason, the license is suspended or terminated no one will be able to use radioactive materials of any kind. Therefore, every individual is responsible not only to maintain compliance with all rules, regulations, procedures, and policies that govern the use of radioactive material, but also to promote a safe working environment through his/her radiation and contamination control practices.
   2. All persons involved in the use of radioactive material may be subjected to inspections by the NRC, the State of Michigan, WMU Executive Management, and the RSO or designee to assure compliance with all relevant rules and regulations. Failure of an individual to conduct his/her research within the rules, regulations, procedures, and policies made in the license application or registration, subsequent amendments, or correspondence can result in enforcement action, against WMU, the Executive Management, the RSO, and/or the individual. This could include a notice of violation, imposition of a civil penalty or an order suspending, modifying or revoking the license as specified in the General Statement of Policy and Procedure for NRC Enforcement Actions.

B. Local Consequences:
   1. Because of the serious consequences to the general public and WMU Authorized Users and Radiation Workers, the RSO shall take prompt and decisive action when dealing with individuals who do not achieve the meticulous attention to detail and high standard of compliance expected of them.
   2. The RSO will document violations and deviations of the rules, regulations, procedures, and policies that govern the use of radioactive material.
3. The RSO shall determine and document the sanctions, if any, necessary to prevent recurrence.

4. Sanctions that may be given by the RSO in the order of severity, least to most:
   a. Meeting with the RSO, the Authorized User (AU), and the individual; may also include the Executive Manager.
   b. Require retraining of the individual.
   c. Restrict use of radioactive materials.
   d. Terminate the privilege to use radioactive material.
Appendix A
Sub-programs that comprise the Radiation Safety Program
[License Application 0302010]

A. Training  [10CFR19.12]
Radiation Safety Training consists of three different courses; Basic Radiation Safety, Authorized User, and Refresher training. The basic course may vary as to the potential hazards associated with the attendee’s expected use, i.e., radiation producing machine users may not receive in-depth contamination control training. The training course for Authorized Users will build on the Basic Radiation Safety Training Course. Since Authorized Users are responsible for supervising Radiation Workers, the training they receive will delve further into both radiation theory and proper radiological practices.

1. Personnel shall satisfactorily complete a Radiation Safety training course:
   a. Prior to using radioactive material or radiation producing machines.
   b. An annual refresher training course in order to continue to use radioactive material or radiation producing machines.
   c. Whenever there is a significant change in duties, regulations, or the terms of the license.
   d. As required by the RSO.

B. Radiological Controls Program  [10CFR20 / 10CFR 30 / 10CFR33]
The Radiological Controls Program consists of procedures and practices used to maintain exposure to the general public and WMU AU/RWs ALARA. The procedures contain control limits for occupational exposure and contamination levels; radiation and contamination survey requirements; criteria and instruction on releasing areas and equipment for unrestricted use; decontamination methods; anti-contamination clothing requirements; and ALARA practices.

C. Quality Control Program  [10CFR20]
The Quality Control Program consists of the procedures and practices used to ensure that the procedures and practices used at WMU are of the highest standards. The Quality Control Program consists of procedures for conducting internal audits. The program also provides requirements for reporting, investigating, and correcting of incidents adverse to quality relating to the control and use of radioactive material or radiation producing machines.

D. Source Inventory and Control Program  [10CFR20 / 10CFR30 / 10CFR37 / 10CFR40]
The Source Inventory and Control Program consists of procedures and practices used to ensure compliance with the quantity and type of material specified by our operating licenses. The procedures contain the steps and responsibilities for ordering, receiving, and inspecting radioactive material, the requirements and methods for the safe handling of radioactive sources, and frequency for conducting material inventories.
E. Instrumentation and Dosimetry Program  \[10\text{CFR20}\]
The Instrumentation and Dosimetry Program consists of the procedures and practices used to obtain accurate exposure measurements. The program also requires the assessment of exposure. The instrumentation portion of the program delineates the requirements for use and calibration of all instruments used to perform dose estimates and surveys.

F. Radioactive Waste Program  \[10\text{CFR20} / 10\text{CFR61}\]
The Radioactive Waste Program consists of the procedures used to minimize, control, store, and dispose of radioactive waste generated at WMU. The procedure provides the choices available for the disposal of radioactive waste.

G. Transportation of Radioactive Material/Waste Program  \[10\text{CFR71} / 49\text{CFR172} / 49\text{CFR173}\]
The Transportation of Radioactive Material/Waste Program consists of the procedures used to ensure compliance with the rules and regulations governing the conveyance of material over public roadways. The shipping of radioactive material/waste is an infrequently performed task. The procedure refers the RSO and shipper to the appropriate rules and regulations.

H. Administrative Controls Program  \[10\text{CFR19} / 10\text{CFR20} / 10\text{CFR30}\]
The Administrative Controls Program consists of the procedures that specify the requirements for: record and documentation management; the information and criteria for becoming an Authorized User; and information needed to get approval for additional uses and facilities. Administrative Controls are used to ensure that WMU documents and retains compliance with the rules and regulations governing the use of radioactive material and radiation producing machines.

I. Emergency Plan  \[10\text{CFR19} / 10\text{CFR20}\]
The Emergency Plan consists of procedures used to minimize the potential exposure of/to the general public and WMU AUs/RWs by providing immediate responsive actions to emergencies involving an unplanned release of radioactive material or unplanned exposure rates. The plan includes an emergency call out list, the events that would require notification of state and federal agencies, and procedures that contain immediate actions and basic recovery actions for the first radiation worker responding to or discovering a radiological incident.