



Radiation Safety




RADIATION PROCEDURES MANUAL

Procedure Cover Sheet

Procedure Title: Radiation Safety Program Oversight

Procedure Number: RS-01_Rev0

Effective Date: July 1, 2019

Approved By: 
Radiation Safety Officer

Date: 24-JUN-2019

Approved By: 
Radiation Safety Committee Chair

Date: 24-June-2019



Procedure #: RS-01
Procedure Title: Radiation Safety Program Oversight
Approval Date: June 24, 2019
Effective Date: July 1, 2019

Contents

1. INTRODUCTION.....	3
2. PURPOSE	3
3. SCOPE.....	3
4. ROLES AND RESPONSIBILITIES	3
5. REQUIRED MATERIAL(S).....	3
6. PROCEDURE	4
6.1.1. Management Oversight	4
6.1.2. Amendments and Program Changes	4
6.1.3. Facilities,.....	4
6.1.4. Equipment and Instrumentation	5
6.1.5. Material Use Control and Transfer	5
6.1.6. Area Radiation Surveys and Contamination Control	5
6.1.7. Training and Instructions to Workers	5
6.1.8. Radiation Protection	6
6.1.9. Radioactive Waste Management.....	6
6.1.10. Decommissioning.....	6
6.1.11. Transportation	6
6.1.12. Notifications and Reports	7
6.1.13. Posting and Labeling	7
6.1.14. Dose to Members of the Public	7
6.1.15. Additional Evaluations	7



Procedure #:	RS-01
Procedure Title:	Radiation Safety Program Oversight
Approval Date:	June 24, 2019
Effective Date:	July 1, 2019

1. INTRODUCTION

The NRC in 10 CFR 20.1101 requires periodic (at least annual) review of the radiation protection program content and implementation. More detailed guidance is presented in NUREG 1556, Rev 1, Appendix F, Sample Audit Program – Non-Medical. This guidance is referenced in the Radiation Safety Manual (RSM) for use in the annual program audit by the Radiation Safety Officer (RSO) and Radiation Safety Committee (RSC).

2. PURPOSE

This procedure specifies topic areas that will be reviewed as part of the annual program audit.

3. SCOPE

This procedure applies to the annual internal audit of the ISU radiation safety program by the RSO and the RSCC with reporting to the Vice President for Research. The audit assesses compliance to the ISU Radiation Safety Manual and four radioactive material licenses possessed by ISU.

4. ROLES AND RESPONSIBILITIES

- Vice President for Research – The Vice President for Research reviews the audit report prepared by the RSO and Radiation Safety Committee Chair (RSCC) and ensures adequate resources are available to make necessary corrective actions. The VPR also reviews the performance of the RSO and RSCC to the requirements of the RSM.
- Radiation Safety Officer – Performs annual audits of authorized users using the Radionuclide Laboratory Evaluation Procedure EHS-08-08 and participates in the overall program review with the RSCC.
- Radiation Safety Committee Chair – Leads the overall annual program review conducted in accordance with RSM and this procedure.
- Radiation Safety Committee Members – Perform functions of the RSCC as designated.

5. REQUIRED MATERIAL(S)

Access to radiation safety records electronic on Box and in the file cabinets of the EHS office.



Procedure #: RS-01
Procedure Title: Radiation Safety Program Oversight
Approval Date: June 24, 2019
Effective Date: July 1, 2019

6. PROCEDURE

The RSO and RSCC shall review a subset of authorized user programs and radiation safety records on an annual basis to assess the overall radiation safety program at ISU. Results of this assessment will be documented in formal report to the Vice President of Research. This assessment will occur in the second quarter of the calendar year after all annual reports and data are available for inspection and will be documented in a written report.

6.1.1. Management Oversight

At a minimum, the VPR and the RSCC shall evaluate the RSO's performance over a one year period and complete a written report within the second calendar quarter. Such report shall be shared with the RSC and the RSO at the discretion of the VPR.

- (1) Have all active laboratories been audited over the year for compliance to the RSM, license requirements and user permit requirements?
- (2) Have all inventory procedures been completed within the requirements of the RSM during the allotted periods every 6 months?
- (3) Evaluate performance to the following by reviewing records and interviewing AUs and RWs.
 - a. Responsiveness to NRC and State inspections
 - b. Management of and control of worker dose and ALARA
 - c. Implementation of RSM requirements
 - d. Communication and training of AUs and RWs to changes in the program
 - e. Communication with RSC and other committees as appropriate.

The VPR and/or his delegate(s) shall review the performance of the RSCC and RSC to the documented responsibilities in the RSM. Such review shall be documented in the annual audit report.

6.1.2. Amendments and Program Changes

One or more members of the RSC shall review all License amendments and resulting program changes occurring over the past calendar year. They will verify that the program changes are properly implemented.

6.1.3. Facilities

One or more members of the RSC shall independently tour and evaluate a sample of laboratories from the total group including those laboratories that are not active and have not completed decommissioning and those that are using radioactive materials or radiation producing equipment. The following items shall be evaluated for each laboratory as applicable.

- Access Control
 - Control of access to High Radiation Areas
 - Control of access to Very High Radiation Areas
 - Security of stored material
 - Control of material not in storage
 - Background investigations and access authorization program for unescorted access to the reactor, sub-critical assembly, and security category II sources.
- Engineering Controls
 - Use of process or other engineering controls to control exposure.



Procedure #: RS-01
Procedure Title: Radiation Safety Program Oversight
Approval Date: June 24, 2019
Effective Date: July 1, 2019

-
- Fume hoods tested at proper intervals.

6.1.4. Equipment and Instrumentation

One or more members of the RSC shall evaluate by review of records the calibration of radiation survey or monitoring equipment.

- Instruments Calibrated Annually as specified in the RSM

6.1.5. Material Use Control and Transfer

One or more members of the RSC shall review documents of control (logging sources in the EHS Assistant database) and records of receipt and transfer of radioactive material.

- Security and Control
 - Material secured and controlled in accordance with RSM.
- Receipt and Transfer
 - Procedures for receipt and transfer of radioactive material
 - Receipt surveys (RPR-13A)
 - Transfer authorization (RPR-14)
 - Nuclear material transaction reports 741

6.1.6. Area Radiation Surveys and Contamination Control

One or more members of the RSC shall review by verifying by sample the location of licensed material at each active storage location or laboratory. In addition, the RSC member will review area surveys conducted by authorized users and the radiation safety department.

- Area Surveys
 - User surveys completed in accordance with RSM and user permits
 - EHS surveys completed in accordance with RSM
- Leak Tests and Inventories
 - Semi-annual leak tests performed.
 - Semi-annual radioactive material inventory performed.
 - Semi-annual physical inventory of accountable nuclear material inventory under broad scope license performed.
 - Semi-annual physical inventory of accountable nuclear material inventory under reactor and SNM licenses performed.
 - Annual NSTS Inventory verification performed
 - NMMSS Inventory Report submitted (742)

6.1.7. Training and Instructions to Workers

One or more members of the RSC shall review the training program for authorized users (AUs) and radiation workers (RWs) by evaluating the training material, training records, and interviewing of radiation workers.

- Workers have completed initial on-line radiation safety training.
- Workers have completed on-line annual refresher training.
- Training completion entered in the EHS assistant database.
- Authorized users have conducted specific training.



Procedure #: RS-01
Procedure Title: Radiation Safety Program Oversight
Approval Date: June 24, 2019
Effective Date: July 1, 2019

- Training covers topics specified in the RSM

6.1.8. Radiation Protection

One or more members of the RSC shall independently evaluate the preceding 12 months of records of worker dose and program ALARA performance.

- External dosimetry records for all monitored individuals
- Bioassay and/or air monitoring performed

6.1.9. Radioactive Waste Management

One or more members of the RSC shall review the waste storage areas, the waste storage and disposal records and any special waste management situations including license requirements.

- Waste management procedures
- Traceability of sources into waste containers.
- Records of radioactive waste disposal through TGA Inc. Waste manifest NRC 540 and 541
- Sewage disposal records
- Decay in storage records
- Waste storage areas
 - Material secured
 - Containers labeled
 - Permission to generate mixed waste.
- Characterization documentation

6.1.10. Decommissioning

One or more members of the RSC shall review the RSO's plans for decommissioning of any facilities and provide their assessment of progress, financial assurance, performance to required timeline and any changes in the radiological risk profile of the facility. The review will address the following decommissioning activities.

- Decommissioning surveys for individual laboratories.
- Decommissioning plans for complete facilities.
- Decommissioning reports for complete facilities.

6.1.11. Transportation

One or more members of the RSC shall review by sample shipments of radioactive materials. Such review shall verify quantities and types of licensed material, licensed receipt, appropriate packaging, radiation surveys, and appropriate record keeping.

- Shipping documents (bill of lading, dangerous goods declaration, airbills)
- Package test documentation
- Shipper training (Ground (3 year) and air (2 year))
- Shipment survey documentation
- Licenses of receiving institutions verified as applicable
- Transfer authorization completed (RPR-14)



Procedure #:	RS-01
Procedure Title:	Radiation Safety Program Oversight
Approval Date:	June 24, 2019
Effective Date:	July 1, 2019

6.1.12. Notifications and Reports

One or more members of the RSC shall review by sample radiation safety reports as specified below.

- Individual dose reports sent to personnel receiving greater than 100 mrem.
- Individual dose reports sent to requesting individuals
- Reports to workers formerly engaged in licensed activities provided within 30 days.
- Incident reports as required by 10 CFR 20 or 10 CFR 30

6.1.13. Posting and Labeling

One or more members of the RSC shall review by sample posting and labeling of areas, materials and containers as specified in the RSM.

- Notice (NRC Form 3) to workers English and Spanish
- Caution X-ray postings as applicable
- Radiation Area, High Radiation Area, Caution Radioactive Materials posted appropriately
- Labeling of containers including storage cabinets.

6.1.14. Dose to Members of the Public

One or more members of the RSC shall verify that no member of the public was exposed to radiation above applicable limits by reviewing the following reports.

- NESHAPs Report
- 100 mrem Report

6.1.15. Additional Evaluations

At the request of the VPR or the RSCC, members of the RSC shall complete any of the previous reviews more often than as listed or of any additional control item not listed here but listed in the RSM.



Procedure #:
Procedure Title:
Approval Date:
Effective Date:

RS-01
Radiation Safety Program Oversight
June 24, 2019
July 1, 2019

LIST OF FORMS

None.