



Radiation Safety

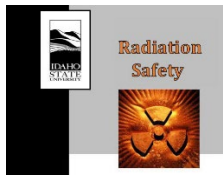


RADIATION PROCEDURES MANUAL **Procedure Cover Sheet**

Procedure Title: Sealed Source Safety
Procedure Number: RS-19 Rev.1
Effective Date: 02/29/2024

Approved By: Radiation Safety Committee

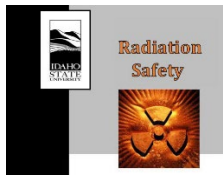
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Revision History

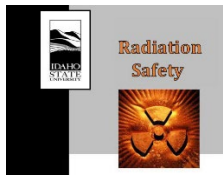
Revision Number	Author Name	Date	Approved by/date
RS 19.0	Mason Jaussi & John Longley	07/02/2021	RSO-07/02/2021
RS 19.0	Miranda Kriner	08/18/2023	RSC-07/02/2021
RS 19.1	Mason Jaussi	01/05/2024	RSC-02/02/2024
RS 19.1	Kishor Paudel	03/26/2024	RSC-02/02/2024



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1. INTRODUCTION

Idaho State University radiological user facilities commonly handle sealed sources. This procedure outlines the steps for the safe handling of sealed sources.

2. PURPOSE

This procedure provides instructions for keeping radiation exposure As Low As Reasonably Achievable (ALARA) to operational personnel handling sealed sources at Idaho State University radiological facilities.

3. SCOPE

This procedure applies to all authorized users and radiation workers handling sealed sources. This procedure also specifies instructions for safely handling significant sources that may produce a Radiation Area in the Idaho Accelerator Center (IAC) laboratories and specifies security measures for storing the sources. Radiation Areas are areas where the dose rate exceeds 5 mrem/hr at 30 cm from the source and High Radiation Areas are areas where the dose rate exceeds 100 mrem/hr at 30 cm from the source.

4. ROLES AND RESPONSIBILITIES

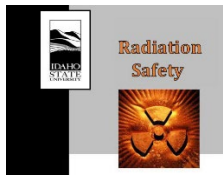
Authorized users ensure that all Radiation Workers with access to sealed sources have read, understand, and follow this procedure. In addition, authorized users inform radiation workers regarding the specific hazards from the sources.

Radiation workers handle sources safely in accordance with this procedure.

The Radiation Safety Officer has the responsibility to oversee the radiation safety program and maintain this procedure.

5. ACRONYMS/DEFINITIONS

ALARA: As Low As Reasonable Achievable
ISU: Idaho State University
RSM: Radiation Safety Manual
RSM: Radiation Safety Officer



6. REQUIRED MATERIAL(S)

- Whole-body dosimeter (as required by the Radiation Safety Department)
- Extremity dosimeter (as required by the Radiation Safety Department)
- Gloves (as required by Radiation Safety Manual (RSM) Section 13.2)

7. REQUIRED TRAINING(S)

- ISU Radiation Safety Training

8. PROCEDURE

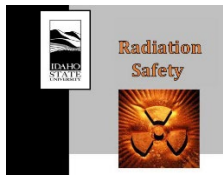
8.1. ALARA Practices

8.1.1. Prior to obtaining and handling a sealed source, the Radiation Worker must:

- Understand the source properties. At a minimum, the user should know the radiation emitted, the activity, and the unshielded radiation fields the source creates.
- Have a specific use for the source and be prepared to perform the task with the source then return it to its proper storage location.

8.1.2. Sealed sources are to be handled using the following ALARA practices:

- If safety instructions are available from the source manufacturer, follow those instructions to safely handle the source.
- Minimize the time holding/using the sealed source while maximizing the distance between yourself and the source.
- Use shielding whenever possible and practical.
- Never loiter near sealed sources of any activity.
- Store sources in an appropriate container or cabinet when not in use. Shielding should be used for higher activity sources.
- Use long reach tools (tweezers, tongs, etc.) when possible and practical to maximize the distance between yourself and the sealed sources. Long reach tools are required for sources that exhibit a contact dose rate greater than 1000 mrem/hr considering all radiation types (RSM 13.8).
- Do not touch the active area of a plated source.
- Frisking hands and washing hands should be performed after handling sealed sources.



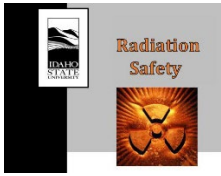
- If a source is dropped or damaged is suspected, place the source in a safe configuration, survey the area for contamination, and notify the Radiation Safety Department.

8.2. Significant Sources

- 8.2.1. Significant sources at ISU are defined as those that create a radiation area. These sources and their storage requirements are listed in Table 1.
- 8.2.2. Significant sources must be handled with long reach tools.
- 8.2.3. Whole-body Ta dosimeters are required for personnel handling significant sources.
- 8.2.4. For short interval use, the user may control the area in place of posting the area so long as the user is present and properly trained. If the source will be left exposed, post High Radiation Area or Radiation Area at the applicable boundaries. The user must perform gamma and neutron dose rate surveys (as applicable) to verify the area is properly posted. High Radiation Areas must be controlled by the user or by locking the area.
- 8.2.5. Significant sources must be signed in and out of their storage location as required by RS-23, Radioactive Material Sign Out.

Table 1. ISU Significant Sources

Source	HPA #	Storage Requirement
Cf-252	120215047	Single Barrier
Cf-252	210615000	Single Barrier
Cf-252	211007000	Single Barrier
Cf-252	240325001	Single Barrier
Am-241/Be	150710001	Double Barrier



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9. LIST OF FORMS

None.

10. REFERENCES

None.

11. CHANGE HISTORY

Revision 1 – Addition of section 7.2 detailing instructions for handling and storing significant sources

12. APPENDICES

None.