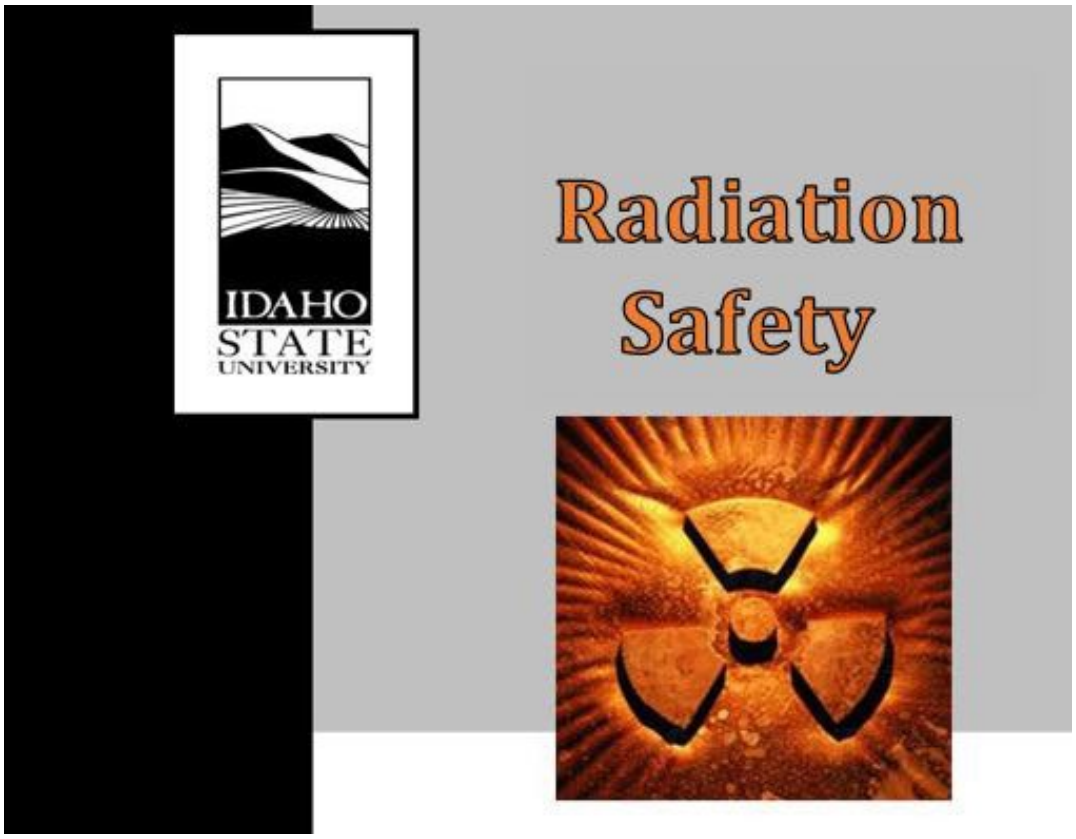

RADIATION PROCEDURES MANUAL

Procedure Cover Sheet

Procedure Title:	Radiation Safety for TVAPL Training Events
Procedure Number:	RS-30 Rev.0
Effective Date:	07/01/2024

Approved By: Radiation Safety Committee Date: 06/13/2024

Revision History

Revision Number	Author Name	Date	Approved by/date
RS 30.0	Miranda Kriner & Mason Jaussi	4/29/2024	RSC-06/13/24

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1. INTRODUCTION

The Treasure Valley Anatomy and Physiology Laboratories (TVAPL) are used to host bioskills training events for clinicians and surgeons and involve the use of radiation producing machines (RPM), such as C-arms. These RPMs are owned by third-parties, brought into the TVAPL for the training event, and operated by licensed personnel. The RPMs are not operated by ISU personnel at the TVAPL. ISU staff at TVAPL perform a radiation safety support role for these training events, as outlined in this procedure.

2. PURPOSE

This procedure provides radiation safety instructions for the ISU staff supporting the training events held at the TVAPL.

3. SCOPE

This is a general procedure that applies to all training events held at the TVAPL involving radiation producing machines.

4. ROLES AND RESPONSIBILITIES

The Radiation Safety Officer (RSO) will revise and maintain this procedure.

The Radiation Safety Department Staff will provide spare dosimetry, electronic dosimeter(s), and the exposure rate instrument to TVAPL staff for these training events.

The TVAPL Training Support Staff will complete all forms, upload them to Box as a record, and ensure this procedure is followed for each event. They will also ensure all active training participants are wearing leaded PPE (apron and thyroid shield) as appropriate.

5. ACRONYMS/DEFINITIONS

ED: Electronic Dosimeter

ISU: Idaho State University

PPE: Personal Protective Equipment

RPM: Radiation Producing Machine

RSO: Radiation Safety Officer

TVAPL: Treasure Valley Anatomy and Physiology Laboratories

6. REQUIRED MATERIAL(S)

- Exposure rate instrument
- Electronic Dosimeters
- Whole-body dosimeter
- Appropriate leaded PPE

7. REQUIRED TRAINING(S)

- ISU General X-Ray Radiation Safety Training or equivalent

8. PROCEDURE

8.1. Event Preparation

8.1.1. The TVAPL support staff will perform the following steps for each event:

8.1.1.1. Provide each participant with the ISU TVAPL Dosimeter Assignment Form and instruct the participant to complete the form.

8.1.1.2. Review the Dosimeter Assignment Form and ensure the training participant has completed ISU's General X-Ray Radiation Safety training or has had radiation safety training through their employer within the last year. If the participant has not had radiation safety training within the last year they will need to complete ISU's General X-ray Radiation Safety Training prior to participating in the event.

8.1.1.3. Record the following information on the bottom section of the Dosimeter Assignment Form:

- Date
- Dosimeter barcode (on the backside of the dosimeter)
- Spare # (on the front of the dosimeter)

8.1.1.4. Issue the participant a dosimeter and instruct them to wear it on the collar outside of their leaded PPE.

8.2. Event Monitoring

8.2.1. Perform an operational source check on the exposure rate instrument at least 24 hours prior to the event to ensure the instrument is functioning properly. These steps are outlined in RS-24, Instrument Response Checks. Record the instrument response value on the appropriate Instrument Performance Log (IPL) via Google Drive.

8.2.2. Record the initial reading of the electronic dosimeter (ED) by turning it on and verifying the value is 0.0 mrem.

- To turn on the DMC 3000 ED:
  - long hold (+) until you see ENTER, quick press (-)
  - release (+) before quickly moving to (-)
  - A dose of 0.0 mrem should display every time the dosimeter is turned back on.
- Note: the screen lighting up and a beep does not indicate ON vs. OFF. The dosimeter's backlight will briefly turn ON, lights will flash, and a beep will sound if any button is pressed.
- A date will display when the dosimeter is off, with the format MMDDYY (may not be a current date)

8.2.3. Attach the electronic dosimeter to the inner side of the C-arm, nearest the technologist, with double sided Velcro tape or equivalent. Ensure the ED has been turned ON prior to placing it on the C-arm.

8.2.4. Complete the TVAPL Event Radiation Safety Survey Form.

8.2.5. Use the exposure rate instrument to measure the exposure rates in areas accessible by the General Public (unmonitored event guests or workers) and ensure they are less than 2 mR/hr during the operation of the C-arm.

8.2.6. Record the electronic dosimeter reading at the end of the event.

8.2.7. Collect the dosimeters from visiting participants after the event and send them to Landauer for processing. Note: Staff dosimeters are collected on the quarterly schedule.

8.2.8. Upload the dosimeter assignment forms and survey form to the box folder.

8.3. Smart C-arm Training Events

During training events involving the use of Smart C-arms, manufactured by Turner Imaging Systems, an "Exclusion Zone" may be established for which training participants outside of this zone are not required to wear leaded PPE while the Smart C-arm is in operation provided the following conditions are met:

8.3.1. Prior to the start of the training event, the TVAPL support staff, working with the licensed machine operator, will establish a 3.5 ft Exclusion Zone around the Smart C-arm.

- The Exclusion Zone boundary will then be established by measurement, with a calibrated and operationally checked ion chamber or NaI based equivalent instrument, prior to forgoing the leaded coverings. The exposure rate at the Exclusion Zone boundary should be less than 2 mR/hr.
- The zone will be demarcated with tape on the floor and actively controlled by the TVAPL support staff.

- No individual may enter the Exclusion Zone without leaded coverings while the Smart C-arm is operational.
- Trainee's without lead PPE must stand outside of the Exclusion Zone, and behind the Smart C-arm during its operation whenever possible.
- This only applies to the Turner Imaging Systems Smart C-arm. Other Smart C-arms will need a separate evaluation performed by the ISU Radiation Safety Department.

9. LIST OF FORMS

ISU TVAPL Dosimeter Assignment Form

TVAPL Event Radiation Safety Survey Form

10. REFERENCES

Idaho Radiation Control Rules (IDAPA 16.02.27)

Suggested State Regulations for Control of Radiation (SSRCR), Part F – Diagnostic X-rays and Imaging Systems in the Healing Arts (May 2009)

Idaho State University Radiation Safety Manual

11. CHANGE HISTORY

None.

12. APPENDICES

None.