AS YOU FINALIZE THIS SOP FORM, PLEASE DELETE THE RED INSTRUCTIONS. All pre-filled information in Blue type should be left in-place if applicable. Refresh the Table of Contents when you are done. To update the header and footer, double-click in the dark blue area at the top of any page.

**Print out the completed form and keep a readily accessible hard copy in the lab for your reference. You can access this SOP online at the** [**UC Learning Center**](https://uc.sumtotal.host/Core/dash/home?domain=4) **by searching for “####”**

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| --- | --- | --- | --- | --- | --- | --- |
| PI: |  | | | | RUA Number: |  |
| Locations: |  | | | | | |
| SOP Title: |  | | | | | |
| Manufacturer: |  | | | **Model:** |  | |
| Date: |  | **Contact Info:** |  | | | |

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# Section 1 – Experimental Description and Process

In this section you should paste in the actual experimental protocol you will be following. The protocol steps where radiation is produced, and the activities involved should be explicitly described so that they can be evaluated.

* List operating parameters/techniques

# Section 2 – Hazardous Chemicals

In addition to the radiation producing machine you will be using, list all other hazardous chemicals used in this experiment.

# Section 3 – Potential Hazards

If there are cryogenic hazards, please address those here (you may cite a cryogens SOP for this purpose). If there are any potential hazards associated with your staining operations, (e.g. Uranyl or Osmium Acetate staining), those should be addressed in this section. You may cite previously established staining SOPs here if those have already been developed by your lab.

List all potential hazards. Examples might include biohazards, sharps, electric shock, compressed gas, fire, volatiles, cryogens, etc.

# Section 4 – Approvals Required

RUA Holder and Lab Contact must complete Radiation Producing Machine Safety training and be listed on the lab RUA.

All other users of the electron microscope must review this SOP and receive specific operational training before using the machine. Completion of this training is then documented by the user’s signature in the machine logbook to acknowledge that the training has been received.

If your experiment involves biohazards, you may be required to have an approved BUA.

# Section 5 – Designated Area

List the authorized areas you plan to work in including any common work areas, etc.

# Section 6 – Special Handling Procedures and Storage Requirements

Because this electron microscope operates under vacuum, it is not possible to open the microscope during operation and access the beam. For the current and voltage that this electron microscope operates at, the machine body provides sufficient shielding to the operator.

Describe any special storage requirements for your samples, materials in process, and wastes used with the machine.

# Section 7 – Personal Protective Equipment & Individual Monitoring Devices

|  |  |
| --- | --- |
| * Safety glasses * Close-toed shoes * Clothing that fully covers the legs | * Gloves (as necessary) * Dosimetry (as specified) |

List any PPE necessary for the ancillary hazards identified in Section 3. Examples are given above.

# Section 8 – Engineering/Security/Ventilation Controls

Because electron microscopes operate under vacuum, it is not possible to open the microscope during operation and access the beam.

List the security methods employed to prevent theft and unauthorized use of the electron microscope. For example: The Electron Microscope is controlled by computer password protection and/or access to the room is restricted by card key access.

# Section 9 – Accident Procedures

Radiation Safety must be notified immediately of any of the following situations

* Loss of control
* Unauthorized use
* Theft of radiation producing machine(s)

In the event of theft

* During business hours call the **EH&S main line at 642-3073**
* After hours and on the weekends call **UCPD at 642-3333**

# Section 10 – Maintenance/Removal

All machine repairs will be performed by qualified personnel.

Machines that are moved from their current approved location require prior notification to EHS&S to verify that the new location is appropriate for use and change of registration with the State of California. Transfer, sale, or disposal of machines to another user or institution similarly requires notification to the State of California within 30 days.

# Section 12 – Training Documentation

To access the standard operating procedures for an RUA on the [UC Learning Center](https://uc.sumtotal.host/Core/dash/home?domain=4):

* Select *Find A Course* from the home page
* Enter only your RUA number in the search bar (e.g., 5421)
* A list of all SOPs for your RUA should be displayed. If any SOP is missing, contact [radsafety@berkeley.edu](mailto:radsafety@berkeley.edu).

If you are unable to access the SOP using the [UC Learning Center](https://uc.sumtotal.host/Core/dash/home?domain=4), and have a time-sensitive need to complete SOP training, you may document completion by signing below. A Radiation Safety team member will collect signatures to upload to the UC Learning Center during the next scheduled routine survey.

# Offline Training Verification

With my signature, I agree that I have read and understand this Standard Operating Procedure.

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| --- | --- | --- |
| **Name (Printed)** | **Signature** | **Date** |
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