Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014 **Renewal**
Next renewal due date: 3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

Version Changes

This is a renewal of Radiological Work Authorization (RWA) 1215. Minor changes were made to the following sections to reflect current language:

- Transportation
- Special Concerns
- Posting and Labeling
- Waste

Radioisotope Limit

Nuclide	Chemical Form	Physical form	mCi/Exp	mCi/Vial	mCi Used/Yr	mCi Possess	Class
Am-241	SOLID SAMPLE	SOLID	8.00E-03	1.00E-03	8.00E-03	8.00E-03	I

Scope of Work

Note on limits: mCi/Exp refers to the amount of activity used at one time. mCi/Vial refers to the amount of activity per sealed source.

Handling of sealed sources.

The sealed sources are used for testing Multi-Channel Plate Detectors (MCPD) with a delay line readout in a vacuum chamber which has an operating pressure of 1E-7 mbar.

Sources are mounted with a housing on a metal bracket/frame inside the chamber. The bracket is placed approximately 15 cm above the bottom of the chamber so that it can illuminate the MCPD which is located at a distance of between 10 and 30 cm away from the sources. The experiment is typically performed over 1 to 2 days.

The sources are used in Building (B) 002, rooms 102, 104, and 106. When not in use, the sources are stored in a locked safe in B002-104.

Work Locations

Building	Room	RMA	Radiological Areas	Comments
002	0104			Sealed Source storage location

Precautions Required

Training

All authorized workers must satisfactorily complete the following training before beginning independent radiological work:

1. EHS0471 Radiation Protection - Radiological Worker I
2. Documented On-the-Job Training (OJT)

The Principle Investigator (PI) or designee conducts OJT. OJT must be filed in the Radioisotope Journal (RIJ). OJT must include what to do if the sources are damaged or lost.

Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014	**Renewal**
Next renewal due date:	3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

Special Concerns

A logbook must be maintained to record use of the sealed sources in any location other than B002-102, 104, or 106; or for use in B002-102, 104, or 106 for more than 48 hours. This logbook must document the source number, removal date, name of authorized worker removing the source, and the return date.

When not in use, sealed radioactive sources must be stored in a locked cabinet or storage room.

Do not handle sources with questionable integrity. If a source has become lost or damaged contact RPG (x7277).

RPG Contact Information:
24 Hour Urgent RPG Assistance - x7277
Whom to Call link on the RPG Website

Other Worker Survey

None required.

Personal Protective Equipment

None Required. Recommended: gloves used when handling sealed sources.

Sewer Disposal

None.

Standard Safety Procedures

Requirements of Pub 3000, Chapter 21 must be followed.

Containment

None required.

Dosimetry

None required.

Daily Worker Survey

None required.

Shielding

None required.

Area Monitoring

None required.

Transportation

On-site transportation of sealed sources by authorized users is allowed if the source is properly labeled, within secondary containment (i.e. carrying case), and is hand-carried or transported in a government vehicle (this does NOT include the Lab Shuttle Bus). An entry in the Custodian's logbook must be recorded when a source is removed from the immediate vicinity of the storage area. If the source is being transported to another person, that person must be authorized to receive the material.

Off-site transportation (including procurement) must be coordinated through the Radiation Protection Group (RPG). A request for Shipment Form must be submitted to RPG. Off-site is defined as outside of the LBNL fenced boundary.

For assistance meeting these requirements contact RPG (x7652).

Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014	**Renewal**
Next renewal due date:	3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

Waste

Contact the Waste Generator Assistant for disposing of radioactive waste. Contact information can be found on the EHS Waste Management website.

Posting and Labeling

All sealed sources or their containers shall be labeled. The label must be yellow and magenta (or black) with a radiation symbol (trefoil). The label should also include as practical: the words, "Caution, Radioactive Material", radionuclide, activity, date of assay, and source RPG number (HC #). Manufacturer's labels may be used to satisfy the labeling requirements. If the container is labeled instead of the source, the container must remain near the source when it is in use to indicate the source's presence.

The sealed source storage location must be secured when the sources are in storage.

A Radioactive Material Area (RMA) shall be established if there is more than 7.2E-3 mCi of Am-241. An RMA shall be within a Radiologically Controlled Area (RCA).

Instruments

None required.

Authorized Radiation Workers

Adherence with the RWA requirements is mandatory in order to prevent potential violations of federal law, including the Price Anderson Amendments Act of 1988, and to ensure protection of workers, the public, and the environment. Failure to comply with the RWA requirements may results in suspension or termination of the RWA and possible disciplinary action.
Signatures below indicate that the authorized user has read this document and agrees to follow the requirements. The Principal Investigator has delegated RWA responsibilities to each authorized user listed below.

Name	Signature	Date	ID	Date of Last Training	
(S=Start Date, E=End Date)				(*Expired, ** Deficient)	
Weber,Thorsten		10/21/14	800360	EHS0471	01-MAY-14

Certification

Radiological work is approved with required precautions.

Health Physicist: Kaitlin M. Engel — 09/30/2014 Date

Technical Reviewer: Greta Toncheva — 09/30/2014 Date

Radiological Control Manager: for DK — 9/30/14 Date
David J Kestell

I certify that the authorized users listed on the RWA have completed required radiation safety training and will work in accordance with the precautions specified.

Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014	**Renewal**
Next renewal due date:	3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

Principal Investigator:	Thorsten Weber	10/2/14 Date
Division Director:	Ali Belkacem	10/8/14 Date

Compliance Assessment

A renewal meeting for RWA 1215 was held on 09/16/2014.

1. Compliance Review
A review of the RPG files and the PI's records was completed at the time of renewal and the following were noted:

- All authorized users of the RWA have completed EHS0471. All required OJT has been completed and filed in the RIJ.
- The inventory was verified. The sources appear to be in good condition with no external damage.
- There have been no Non-Compliance issues within renewal period.

Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014	**Renewal**
Next renewal due date:	3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

Attachment A
(Sealed Sources)

General Requirements and Responsibilities

General requirements for controlling both accountable and exempt sealed sources listed below are summarized as follows.

Surveys: accountable sealed sources are inventoried and leak-tested twice a year by RPG personnel. Exempt sealed sources are inventoried annually by RPG.

Posting, Labeling, and Access: All sealed sources or source containers must be labeled, "Caution, Radioactive Material." Work and storage locations for accountable sources must be posted as RMAs. Exception from the RMA posting may be allowed if each source or source container is labeled, "Caution, Radioactive Material." Source storage locations must be locked when unattended.

Transport: authorized users of sealed sources may transport sealed sources on-site when required to test or calibrate field instrumentation. During transport, sources must be in a secondary container labeled "Caution: Radioactive Material." Privately owned vehicles and public transit vehicles are not authorized for transporting sealed sources.

Sealed Source Inventory

Sealed Source List:

Exempt

Source #	Isotope	Initial Activity(Ci)	Date Made	Current Activity(Ci)	Description	Storage Loc Bldg-Room	Class
5630	Am-241	1.00E-06	08/30/2008	990.28E-09	Metal foil in plastic holder from smoke detector	002-0104	I
5631	Am-241	1.00E-06	08/30/2008	990.28E-09	Metal foil in plastic holder from smoke detector	002-0104	I
5632	Am-241	1.00E-06	08/30/2008	990.28E-09	Metal foil in plastic holder from smoke detector	002-0104	I
5633	Am-241	1.00E-06	08/30/2008	990.28E-09	Metal foil in plastic holder from smoke detector	002-0104	I

****

Lawrence Berkeley National Laboratory
Environment, Health and Safety Division

Radiological Work Authorization

Class I

Auth #: 1215

Date: 9/30/2014	**Renewal**
Next renewal due date:	3/31/2016

Principal Investigator: Thorsten Weber
Phone: 510/486-5588 **Mail Stop:** 2R0100
Division: Chemical Sciences

Title : Sealed Sources for Multi Channel Plate Detector Testing

I accept custody and responsibility for the listed sealed sources. I understand that I am responsible for their safe use and control. I will promptly notify the Radiation Protection Group (RPG) , in writing (or electronic mail) of any changes in inventory.

Sealed Source Custodian: 10/2/14

Thorsten Weber Date