

Subject:

**Management of Moratorium and
Suspension Encumbered Metals**

Effective Date:

November 9, 2015

Supersedes:
NEW

Initiated by:

Jerry Levine
Head, ES&H Department

Approved:
Stewart Prager
Director

MANAGEMENT SYSTEM

Management System (Primary): 09.00 ESH and Integrated Safety Management (ESH)
Management System Owner: Head of ES&H Department
Management Process: 09.11 ES&H Waste Management
Process Owner: Head of ES&H Department
Sub-Process: 09.11.01 Radioactive Waste Management
Sub-Process Owner: Head of ES&H; Head of Environmental Services Division
Subject Matter Expert (SME): Head of ES&H; Head of Environmental Services; Radioactive Waste Manager

APPLICABILITY

This procedure applies to PPPL activities on C and D Sites and establishes the process and responsibilities for the disposition of metals from radiological areas as defined by 10CFR835 and PPPL Policy P-089. “Radiological Areas” are defined as Radiation Area, High Radiation Area, Very High Radiation Area, Contamination Area, High Contamination Area, or Airborne Radioactivity Area. If metal(s) are not **presently** in one of these aforementioned areas, this procedure does not apply.

INTRODUCTION

On July 13, 2000, the Secretary of Energy issued a memorandum directing all DOE operational and field elements to immediately suspend the unrestricted recycling of scrap metals from 10CFR835 defined radiological areas.

This purpose of this procedure is to identify the proper procedures and practices to manage metals in radiological areas in accordance with DOE SC-31 guidance and the intent of the “Suspension”. PPPL is committed to integrating environmental stewardship into all facets of our missions. This stewardship includes proper management of all waste streams created during performance of Laboratory research and operations.

REFERENCE DOCUMENTS

- ESHD 5008 Section 10, *Radiation Safety*
- 10 CFR 835 – *Occupational Radiation Protection*
- HP-OP-07 - *Radiation Safety Posting & Warning Indicators*
- HP-OP-10, *Radiological Survey Techniques*
- OP-AD-115, *Movement of Radioactive/Contaminated Material To/From D Site.*
- Bill Richardson DOE Memo, 13-July-2000, Subject: Release of Surplus and Scrap Metals
- DOE Order 458.1, *Radiation Protection of the Public and the Environment*
- P-089, *Moratorium on the Release of Surplus and Scrap Materials*

DOE Order 580.1A , *Department of Energy Personal Property Management Program*
MC-001, *Control of Government-Owned Personal Property*

DEFINITIONS & ACRONYMS

Authorized Limits: Limits for the release of material approved by DOE. For PPPL, these are documented in ESHD 5008 Section 10 Part 10.1101, and HP-OP-10 Section 5.

Licensed Facility: A NRC or Agreement State facility with authorization to handle radioactive material within the requirements of a formal and current license.

Moratorium Metal (MM): Metal in a “Radiological Area” that has been determined to be contaminated in volume with radioactive material.

Moratorium Metal Waste (MMW): A "Moratorium Metal," as defined above, that cannot be reused on-site and cannot be reused within the DOE complex must be disposed of as radioactive waste.

Radiological Area: Radiation Area, High Radiation Area, Very High Radiation Area, Contamination Area, High Contamination Area, or Airborne Radioactivity Area, as defined in 10 CFR 835.

Suspension Encumbered Metal: Metal that has been classified as scrap metal while in a “Radiological Area.”

Suspension Encumbered Metal Waste (SEMW): A "Suspension Encumbered Metal," as defined above that cannot be reused on-site, or within the DOE complex but that meets the pre-approved authorized limit release per DOE O 458.1 (as documented in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5) can be disposed of as industrial or sanitary waste.

PREREQUISITES

Any metal which has the potential to be contaminated or may have been activated is required to be evaluated as per this procedure prior to release from a Radiological Area.

Any metal being surveyed for release that has the potential for contamination shall be surveyed for loose contamination first.

PRECAUTIONS

Items that are to be assessed for surface contamination shall be free of protective coverings that have been applied over potentially contaminated areas (e.g. paint, sealants, dirt, oil), that may reduce the ability to accurately determine radioactivity levels.

Where potentially contaminated surfaces are not accessible for measurement (as in some pipes, drains, and ductwork), such property may be released after a case-by-case evaluation and documentation based on both the history of its use and available measurements demonstrating that the inaccessible surfaces are likely to be within the limits given in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5.

No metal designated as scrap while in a radiological area may be released for the sole purpose of recycling.

No metal with identified volume contamination (activation) may be released for the sole purpose of recycling.

PROCEDURE

A. IDENTIFICATION OF RESPONSIBLE PARTIES AND ROLES

<u>Responsibility</u>	<u>Action</u>
Cognizant Person	<ol style="list-style-type: none"> 1. Identify the appropriate disposition of metal item(s) in a radiological area. Determine if the item has a possible re-use value. If unsure of the possible re-use of the item, declare the item for re-use or storage. 2. Determine if the material is an identified asset by property number. If uncertain contact Property Management. If material is property, ensure that Property Management is informed of new location. 3. If material is to be re-used or stored, transfer the item to the appropriate storage location. If radioactive, complete section 1 of Material Transfer Sheet (Form 115) per procedure OP-AD-115.
Health Physics Field Operations Section (HP) of the Health Physics Division	<ol style="list-style-type: none"> 4. Perform radiological surveys of all radioactive and potentially radioactive materials in accordance with approved procedures. 5. Perform analysis of radioactive and potentially radioactive waste samples, as applicable. 6. Maintain documentation of records associated with radiological surveys. 7. Complete Section 2 of the Material Transfer Sheet (Form 115) per procedure OP-AD-115. 8. Tag or label LLW as required in accordance with procedures HP-OP-07 and HP-OP-10.
Environmental Services Division (ESD)	<ol style="list-style-type: none"> 9. Ensure that characterization of Low Level Radioactive Waste (LLW) and potentially radioactive waste generated at DOE-PPPL has been performed. 10. Perform calculations to determine the total activity of waste streams using the information provided by the Health Physics Division (HP) and waste generators at DOE-PPPL. 11. Obtain survey records from HP for surveys performed on all LLW items designated for disposal. 12. Ensure that, when process knowledge is used for the characterization of radioactive waste, this process knowledge is documented and that this documentation is retained with the waste shipment files.
Princeton Environmental, Radiological & Analytical Laboratory (PEARL)	<ol style="list-style-type: none"> 13. Prepare and maintain equipment, procedures, and standards used for radioanalysis,

14. Perform analysis of radioactive and potentially radioactive waste samples, as applicable.
15. Maintain documentation of records associated with radioanalytical measurements.

B. METALS: POINT OF ORIGIN

<u>Responsibility</u>	<u>Action</u>
Cognizant Person	<ol style="list-style-type: none"> 1. Determine if material is in a Radiological Area as defined above. If material is in a radiological area proceed to next step. <p style="margin-left: 40px;">Note: If material is not in a radiological area as defined above, control material per HP and Property Management direction.</p> 2. Determine if material is metal in content. If material is metal, proceed to next step. <p style="margin-left: 40px;">Note: If material is not comprised largely of metal, control per HP direction.</p> 3. Determine if material is going to be considered scrap or is a possible candidate for re-use. If material is NOT considered scrap continue by following steps in Section C, "Management of Moratorium metals". <p style="margin-left: 40px;">If material is considered scrap, continue by following steps in Section D, Management of Suspension Encumbered Metal.</p>

C. MANAGEMENT OF MORATORIUM METALS – NOT SCRAP

This section of the procedure addresses the steps necessary to survey and control metals that originate from a radiological area that were identified by the cognizant person not to be scrap metal.

<u>Responsibility</u>	<u>Action</u>
Health Physics (HP) Division	<ol style="list-style-type: none"> 1. Perform and document surveys of materials prior to release from radiological areas in accordance with HP procedures. 2. Identify and control any metal that is determined to be contaminated or activated (as a result of exposure to neutrons or other source of particles that are capable of causing activation) above limits in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5 as Moratorium Metal. <ol style="list-style-type: none"> a. MM needs to be properly characterized to ensure efficient and accurate segregation from unencumbered material. Once characterized and segregated, moratorium metals need to be controlled. Upon completion of documented survey of metal, HP applies a radiological label and the cognizant person (generator) works with Environmental Services Division (ESD) Radioactive Waste Management personnel to control metal in

accordance with OP-AD-115.

- b. Upon completion of documented survey of metal, any metal that is determined to be less than the authorized limits in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5 can be reused without restrictions. Do so in accordance with government property management requirements.
- 3. Contact designated ESD Waste Management (WM) staff to coordinate movement of the metal.

D. MANAGEMENT OF SUSPENSION ENCUMBERED METAL (SEM)

This section of the procedure addresses the steps necessary to survey and control metals that originate from a radiological area that were identified by the cognizant person to be scrap metal.

Responsibility

Action

Health Physics (HP)
Division

- 1. Perform and document surveys of materials prior to release from radiological areas in accordance with HP procedures. Any metal identified as scrap while inside of a radiological area must be controlled as SEM regardless of survey results.
- 2. Control as LLW, [upon completion of documented survey of metal] any metal that is determined to be contaminated or activated (as a result of exposure to neutrons or other source of particles that are capable of causing activation) above limits in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5. Apply a radiological label and the cognizant person (generator) works with WM personnel to control metal in accordance with OP-AD-115.

Cognizant Person
(Generator) from the
responsible line
organization

- 3. Completes and initiates a form 115 for the LLW before movement to the Radioactive Waste Handling Facility (RWHF).
 - a. A WM representative will verify that the information on form 115 is complete and correct. Discrepancies and/or incomplete information will be resolved with the generator. Under the direction of WM personnel, move LLW to the RWHF.

Health Physics (HP)
Division

- 4. Controls as SEMW [upon completion of documented survey of metal] any metal that is determined to be less than the limits in ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5 . The cognizant person and HP completes Part II of the Process Knowledge Form for Clean and Suspension Encumbered Metals (attachment 1)
 - a. Ensure SEMW is segregated from other metals to prevent it from entering the off-site Clean Scrap Metal recycling program.

- b. SEMW must be disposed as industrial waste and cannot be released directly for recycling as clean scrap metal.

TRAINING (SECTION REQUIRED FOR ALL PROCEDURES)

Head of Environmental Services Division 1. Ensures the following training is completed.

Target Audience: ESD, HP, D-site supervisors

Instructor: Waste Management Engineer or designee

Training Method: X Briefing

Frequency: X Other: Initial and for each revision of procedure

Head of Environmental Services Division

- 2. Notifies the Human Resources Training Office of the training so that they will be aware of the training requirements and be able to provide assistance and guidance in the course development, implementation, tracking, and maintenance.

RECORDS REQUIREMENTS SPECIFIC TO THIS PROCEDURE

Records Custodians must assure records are maintained as follows:

Record	Record Custodian	Location	Retention Time
Process Knowledge Form for Suspension Encumbered Metals (Attachment 1)	ESD, Radioactive Waste Management	ESD, P-Drive	Hold Records indefinitely per DOE 3/2008 moratorium.
Material Transfer Sheet (115 Form)	ESD, Radioactive Waste Management	ESD, P-Drive	Hold Records indefinitely per DOE 3/2008 moratorium.
Calculations for characterization	ESD, Radioactive Waste Management	ESD, P-Drive	Hold Records indefinitely per DOE 3/2008 moratorium.
Radiological Surveys	HP	Rad Book	Hold Records indefinitely per DOE 3/2008 moratorium.

ATTACHMENTS

- 1 Process Knowledge Form for Suspension Encumbered Metals
- 2 Workflow to Determine Disposition of Metal in Radiation Area

Process Knowledge Form for Suspension Encumbered Metals

Description of item(s): (include property numbers if applicable)

SUSPENSION ENCUMBERED METAL WASTE

1. Perform and record radiological survey of material.

2 If < DOE O 458.1 pre-approved authorized release limits (ESHD 5008 Section 10 Part 10.1101, or HP-OP-10 Section 5) dispose of as SEMW.

Record HP Survey # and attach to this form. Survey # _____

Material is: Below limits Above Limits

Surveyor's Signature

Date

Cognizant Person:

Generators Name: _____ Ext. _____

Division/Department: _____

Waste Origin: _____

Waste Quantity (lbs.) or Total Volume (ft³) of Waste: _____

Waste Management representative: Waste Id: **RT #** _____ **RW#** _____

Name: _____ Signature: _____ Date: _____

XX

CERTIFICATION

Based upon my radiological and chemical process knowledge of the origin, storage, and use of the items(s) listed, I certify that all of the applicable information on this form is correct.

Print name

Signature of Cognizant Person

Date

All Suspension Encumbered Metal Waste must be transported to the designated area as specified by the Facilities Division Buildings and Grounds Supervisor and placed into an industrial disposal container. Items must fit into waste container. Suspension Encumbered Metals will NOT be recycled.

Workflow to Determine Disposition of Metal in Radiation Areas

