U.S. DEPARTMENT OF ENERGY | Office of Science

Metals Moratorium History and Status

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Outline

- Intro and Brief History
- Background and Timeline
- Improvements to the Process
- Current status
- Summary

Introduction

The release of personal property from DOE accelerator facilities is determined using the following Federal Regulations, DOE Policies, DOE Orders and National Standards;

1. **DOE Suspension**
2. **DOE Moratorium**
3. 10 CFR 835 *Occupational Radiation Protection*
4. DOE Order 458.1 *Radiation Protection of the Public and the Environment*
5. DOE Standard 6001-2016 *Clearance, and Release of Personal Property from Accelerator Facilities*
6. ANSI N13.12-2013 *Surface and Volume Radioactivity Standards for Clearance*

- Provides Screening Levels (SL) for clearance of material (surface and volumetric radioactivity)

DOE Policy via Secretarial Memorandum

- January 2000 - Moratorium on the unrestricted release of volumetrically contaminated metals into commerce
- July 2000 - Suspension on the release for recycling of all metals from radiation areas within DOE/NNSA facilities
  - Radiation Areas are defined by 10 CFR 835
- January 2001 - The Moratorium was re-affirmed and the Suspension was extended indefinitely

DOE and its Predecessor Agencies

- 1942-1946 Manhattan Project, War Department Army Corps of Engineers
  - Wartime weapons development
  - Foundations of first DOE multi-purpose national labs

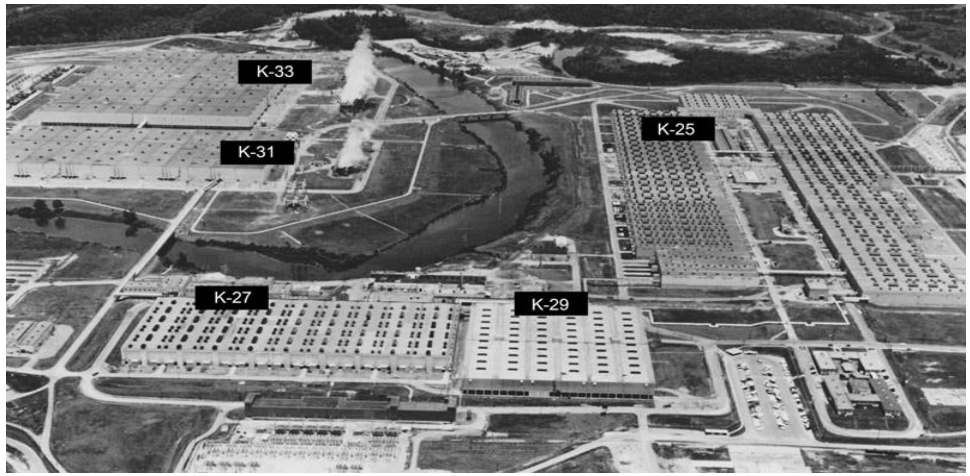
- 1946-1974 Atomic Energy Commission created by the 1946 Atomic Energy Act (P.L. 79-585)
  - Research in basic nuclear processes, nuclear reactor technologies, use of nuclear materials for variety of purposes
  - Establishment of 9 of the 10 DOE/SC national labs

- 1974-1977 Energy Research and Development Administration, a new energy R&D agency motivated by Arab oil embargo and created by (P.L. 93-438)
  - Research expands to include solar, fossil, geothermal, synthetic fuels, transmission, conservation, etc.

- 1977-present Department of Energy (P.L. 95-91)
  - Separation of management oversight of weapons and non-weapons labs and separation of basic and applied research
  - DOE/SC labs undergo transition to “open” labs with 1000s of visitors/users annually

The Oak Ridge Gaseous Diffusion Plant

- Began operations during World War II as part of the Manhattan Project.
- Produced enriched uranium for use in atomic weapons and for the commercial nuclear power industry from 1945 to 1985 - Permanently shut down in 1987.
- The K-25 building measured half a mile by 1,000 feet.
  - 1,640,000 square feet of floor space and a volume of 97,500,000 cubic feet.
- Uranium Hexafluoride UF_6 (highly corrosive). Pipes and fittings made of, or clad with nickel. Used electroplating for larger items.



Background

- **Sept 1998** - DOE awarded a contract to D&D three large process buildings located at the Oak Ridge K-25 Plant.
- These buildings contained vast amounts (> 1 million tons) of process and electrical support equipment made from steel, aluminum, copper and nickel. The sub-contractor would be allowed to underwrite a significant portion of the total project cost with proceeds garnered from the decontamination and sale of recycled metal.
- Public concern about
  - DOE's release process for potentially contaminated material
  - DOE's ability to prevent radioactively contaminated materials from reaching the public through general commerce.
- Metal industry expressed concerns about the potential loss of consumer confidence in domestic metal resources based on an inadvertent release of radioactive materials from a DOE site.

Moratorium and Suspension

Secretarial Memoranda Issued based on public and industry concerns

Jan 12, 2000 - Moratorium prohibiting the release of volumetrically contaminated metals into commerce pending a decision by the Nuclear Regulatory Commission whether to establish national standards (NRC declined to release a national standard in the 2005 however the moratorium remained in effect).

July 13, 2000 - Suspension on the release of scrap metal for the purpose of recycling from radiological areas at DOE/NNSA facilities.

- The suspension was intended to remain in place until improvements could be made to radiological material release criteria and information management practices associated with radiological clearance of personal property.

Suspension Extended

Jan 19, 2001 - Memorandum extended the existing suspension until the Department

1. Developed and implemented improvements to the clearance process,
2. Revised its directives and associated guidance documents applicable to scrap metal releases,
3. Engaged the public in a dialogue regarding DOE radiological release practices through the NEPA process.

Process Improvements – DOE Response and Actions

- **2001 to 2012** Agency wide actions taken and processes developed to assess and improve the Department's radiological clearance and release of personal property program including; developing protocols and processes for recycling of accelerator materials.
- An integrated team of experts from across DOE developed a method to evaluate steps taken by individual sites to address the areas of concern.
- **Feb 2011** - DOE replaced DOE Order 5400.5 with DOE Order 458.1, *Radiation Protection of the Public and the Environment*, which strengthened the Department's radiological monitoring and release program and incorporated an improved scrap metals clearance process.

Process Improvements Continued

- **Sept 2011** - Secretary delegated authority to manage the clearance and recycle of scrap metal from radiological areas to the NNSA Administrator and the Under Secretary for Science in accordance with the processes contained in DOE Order 458.1.

- Individual SC-sites received authorization to resume clearance operations based on successful DOE-led reviews to validate implementation of the requirements of the 2011 memo.

DOE-STD-6004

- Developed in 2012 by subject matter experts from DOE national laboratories and reviewed by SC, NNSA and AU.
- Fully compliant with the requirements of DOE O 458.1.
- Does not directly affect the moratorium or suspension.
- Establishes a graded approach for clearance of personal property from accelerator facilities
- Incorporating the processes of DOE Order 458.1-3 and the volumetric clearance values from ANSI-N13.12-2013, *Surface and Volume Radioactivity Standards for Clearance.*
- Most recent version was approved and released in March 2016

Efforts and Current Status

Nov 2017 – EM, with support from SC, NNSA, AU, MA, and GC, accelerated an effort to rescind the suspension and moratorium; A S-1 decision memo was drafted and circulated for comment

Jan 2018 DOE received a letter from the Metals Industry Recycling Coalition (MIRC) regarding DOE-STD-6004

Feb 2017 – Undersecretary briefed on EM initiative

May 2018 - A meeting was held on between representatives from DOE and MIRC – Favorable outcome

May 2018 – The new EM-1 decided not to pursue the initiative at the present time

Property Clearance Decision Summary

Is the metal subject to the Suspension?

- Determine if the metal was designated as scrap while it was in a radiation area as defined by 10 CFR 835
- For accelerators, radiation areas change based on machine state

If the metal is not subject to the Suspension, use DOE STD-6004 to objectively determine if the metal is subject to the Moratorium

- Is it volumetrically contaminated?
- **In 2013 the ANSI standard was revised to reduce their criteria from 1 mr/hr to IFB, consistent with the DOE standard.**

Summary

The Moratorium and Suspension are still in place.

Metal subject to the Moratorium or Suspension is not released.

Thank you!