

ACCURACY

PERFORMANCE



ACCOUNTABILITY

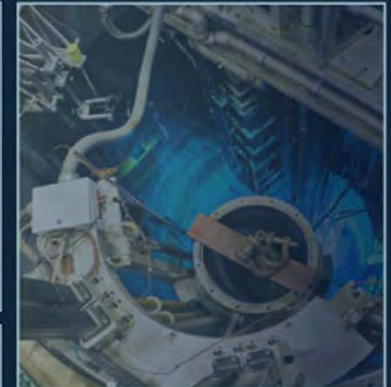


THE NUCLEAR MATERIALS MANAGEMENT AND SAFEGUARDS SYSTEM (NMMSS)

NMMSS  2013

USERS ANNUAL TRAINING MEETING

 MAY 20-23, 2013 - ST. LOUIS, MISSOURI 



Closeout of the Cf-252 Loan/Lease Program

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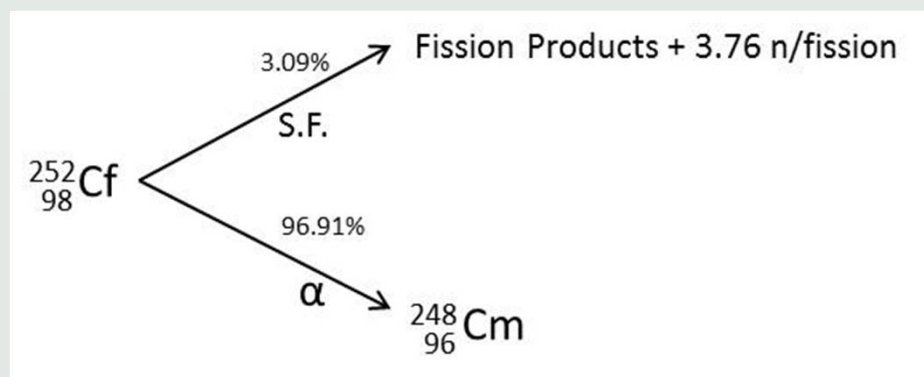
Preview

- Introduction
- Program History
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- Summary



Introduction

- Californium-252
 - First isolated in 1952 in Ivy-Mike explosion
 - 2.645 y half-life
 - 2.3×10^6 n/μg/s
- ORNL and RIAR are the only producers
- ORNL provides about 70% of the world's Cf-252





Introduction

- Packaged in sealed containers
- Used as neutron sources
 - Radiography
 - Well logging
 - Nuclear reactor start-up
 - Instrument calibration
 - Cancer therapy
 - Prompt gamma neutron activation analysis (PGNAA)
 - Education





Introduction

- Cf-252 Loan/Lease Program
 - Program to allow low-cost access by government agencies, qualified government contractors, and medical centers to Cf-252 sealed sources
 - Allowed users to borrow or lease Cf-252 sealed sources
 - Loans or leases spanned 1-5 years, and were renewable
 - Customers paid a low fee to cover some shipping and handling costs, but paid nothing for the Cf-252
 - Sources were to be returned at the end of the loan or lease

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Program History

- Initiated as a component of DOE's Cf-252 Market Evaluation Program in late 1960s
 - Two purposes
 - Stimulate growth of industry centered on Cf-252 (sales)
 - Stimulate demand for Cf-252 in the marketplace (loans)
- Program administered by Savannah River Site (SRS) from late 1960s through 1987
- ORNL took over the program in 1988

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Program History

- Program funded by AEC, ERDA, and then DOE
 - Sales performed through the DOE Isotope Program
 - Production and loans funded by DOE NNSA
- In 2009, regular DOE funding ceased
- Industry quickly rallied and organized a private consortium to restart Cf-252 production and sales
- No new funding was provided by anyone to continue the loan program

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Current Status of Loan Program

- Loan program has been in a suspended state since 2009, awaiting decision on its fate (Resume? Retool? Close?)
- Loaned or leased inventory
 - 59 customers on record (47 sites)
 - 57 customers hold 220 loaned/leased sources
 - 2 customers handed over their sources (1 each) to DOE's Off-Site Source Recovery Project (University of Maryland, 2009; Edinboro University, 2011)
- Stored inventory
 - 336 sealed sources stored at ORNL in a storage pool (many of these owned by the Cf-252 Loan/Lease Program)
- No new sources manufactured for loan or lease in many years
- No new loan or lease agreements have been executed
- ORNL hasn't been able to accept source returns from customers since regular program funding ended

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Desired End State

- In 2012, DOE selected to close out the loan program
- Desired End State
 - All sources recovered from non-DOE customers
 - All sources at DOE sites are recovered or reassigned to other active DOE programs
 - Stored sources valuable to other DOE programs are reassigned
 - Unneeded sources are disposed to Nevada National Security Site (NNSS) or Waste Isolation Pilot Plant (WIPP)
 - No sources remain in the program inventory at end of closeout
 - All loan or lease agreements closed

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Accomplishments

- New funding received in FY 2013 to begin closeout
 - Funding provided by NNSA through the Heavy Isotopes Lead Materials Management Organization (LMMO)
- NRC certificates of registration for six types of Cf-252 sealed sources were inactivated in August 2012
 - Implications
 - Avoided \$95K in yearly renewal fees to NRC in FY2013
 - Prevents us from issuing sources to NRC-regulated customers
 - Does not affect the safety of sources already on loan

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Accomplishments

- Responsibility for two DOT special form certificates transferred to the Cf-252 Sales Program
 - Ability to ship Cf-252 sources outside of the U.S. has been maintained
- Customer contact information verified and notification letters sent to program customers
 - 56 letters sent, and awaiting confirmation of contact information for 3 customers

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Accomplishments

- Set up an automated customer survey web site to collect information from program customers
 - SurveyMonkey.com
 - So far, 39 customers (2/3 response rate) have filled in the survey
 - Received additional information by email and follow-up phone calls
- Digitizing customer historical records and organizing them into an Access database
 - Loan agreements, shipping records, etc.
- We have begun planning our next steps

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Path Forward

■ Non-DOE sites

- We will seek 100% retrieval
- Source retrievals will be arranged through the National Isotope Development Center – Isotope Business Office at ORNL
- Retrieved sources will be placed in the ORNL Cf-252 storage pool
- Customer is expected to pay shipping costs for returns
 - Will work with customer individually to arrange for shipping
- One return shipment/site for nearly all locations
- Prioritized return schedule will be developed
- ORNL has Type A casks that may be used for retrievals

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Path Forward

■ DOE sites

- We will seek 100% accountability
- Sites will be given several options
 - Return unwanted sources to ORNL at their own cost
 - Directly dispose of unwanted sources
 - Keep wanted sources
- Sources not returned to us must be transferred to another DOE program
- Source transfers would be done on paper, so may be done relatively quickly
- Physical source returns will be handled in priority order along with returns from non-DOE sites

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Path Forward

■ Stored Sources

- Includes sources in the storage pool now and sources that will come back to the storage pool upon retrieval
- Other DOE programs will be given the opportunity to acquire sources from the pool at their own expense
- Unwanted sources will be disposed
 - NNSA for low-level waste (LLW)
 - WIPP for trans-uranic (TRU) waste



Path Forward

- Time Frame
 - Assumptions
 - Only 1 shipment needed from each non-DOE site
 - 35 non-DOE sites must return sources
 - No shipments needed from DOE sites
 - Note: 40% of all loaned/leased sources are at DOE sites
 - ORNL can process 8-10 source returns/year
 - Closeout is possible in four years
- New Cf-252 sealed sources may be purchased from commercial suppliers

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Path Forward

- Future closeout costs will include
 - Project management
 - Costs to handle returned sources
 - Costs to remove sources from the storage pool and package them for disposal
 - Disposal costs
 - Contingency costs
- Costs associated with transfer of sources to other DOE programs are minimal and will be borne by the program office

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Path Forward

- Tasks remaining for this fiscal year
 - Generate cost estimate and draft recall schedule for non-DOE sites
 - Ask each DOE customer about their intentions in regard to their loaned/leased sources
 - If possible, begin programmatic transfers this fiscal year for loaned/leased sources
 - Determine fair policy for transfer of desirable sources from the ORNL storage pool to other DOE programs
 - Determine funding needs for FY14, assuming we begin source retrievals in that year

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Summary

- DOE initiated closeout of the Cf-252 Loan/Lease Program this fiscal year
 - Cancelled or transferred licensing paperwork
 - Informed customers
 - Surveyed our customers to help us plan closeout
- Planning is underway to carry out source retrieval and disposal of unwanted sources
- Investigating transfer of sources to other DOE programs