

# Type B Packaging Replacement Efforts at the MU Research Reactor Center

*NRC Public Meeting  
Washington, D.C.*

*11 July, 2012*



Ralph Butler, Director  
John Ernst, Associate Director  
Michael Flagg, Assistant Director  
University of Missouri Research Reactor

# Public Meeting

- Overview of MURR
- Strategic Approach to Package Replacement and Review of Challenges
- Addressing RIS o8-18
- Special Permit and NRC Authorization to Ship
- Proposed Compensatory Measures
- Impact of Revocation of Authorization to Ship

# MU Research Reactor (MURR)

- Largest University Research Reactor in U.S.
- Supplier of Medical, Research, and Industrial Radioisotopes, Irradiation Services
- Operates at 10 MW, 52 weeks per Year
- Average Over 1000 RAM Shipments per Year
  - Domestic and International
  - 200 - 300 Type B per year

# MURR Good Faith Efforts to Upgrade Packaging Fleet

- Multiple bid requests between 2005 and 2007 to find a vendor
  - MURR investigated designing own package
- Contract for two designs with 2010 delivery
- MURR has spent **\$3M** to date and will spend several million more dollars to complete the conversion
- MURR allowing use of package designs by everyone in Industry

# Strategic Challenges

- Original Cost Estimate by NRC for design and approval was \$340,000 - \$390,000 per design
- Final Design Implementation Cost will be **10X** NRC Estimate, then must pay for packages
- Design Changes have pushed back delivery date

# Replacement Program Schedule

- SAFKEG-LS Packages (Model 3979A) Now Scheduled to Deploy at MURR in **Q4 2012**
- SAFKEG-HS SARP (Model 3977A) to be Submitted Q3/Q4
  - Incorporating Lessons-Learned from LS SARP and Manufacturing
  - Expectation that this will speed approval time

# RIS 08-18

- Provides Information used to consider requests for extending use of DOT Specification Packages past 2008
- Package Information
- Shipments
- Reasons for Extending Use
- Safety Justification for Extended Use
- Replacement Plan

# NRC Authorization and DOT Special Permit

- Special Permit DOT SP-14657 issued in August 2008
  - Expires on 31 August 2012
  - Timely Renewal Requested
  - Quarterly Updates to DOT
- NRC Authorization Letter
  - NRC RIS 08-18 issued on 14 August 2008
  - Authorization ends on 31 August 2012
  - Renewal Requested



# Shipments Currently Authorized

- Isotopes Currently Shipped Under NRC Authorization to use DOT SP-14657
  - Ir-192 (treatment for cancer patients)
  - Sm-153 (treatment for cancer patients)
  - Cs-131 (treatment for cancer patients)
  - Yb-169 (industrial irradiation sources)
  - P-32 (used nationwide in biomedical research)

# Reasons to Extend Use

- No ability to split into Type A Quantities
  - Significant ALARA Concerns to Workers
  - Physically Unable to Split Ir-192 into Type A
- No Replacement Packages Available
  - MURR Designs to be most flexible on market upon deployment
  - AOS 50 will not allow shipment of P-32
- No credible hazard to continued use of 20WC-1 and 6M packages under SP-14657

# Proposed Compensatory Measures

- We Propose a Voluntary Reduction in Quantities allowed under SP-14657:
  - P-32: Reduce A2 Multiple from 400 to 40
  - Yb-169: Reduce A2 Multiple from 200 to 100
- Upon deployment of the LS in Q4 2012 the following isotopes will shift off the special permit:
  - Sm-153
  - Cs-131
  - Yb-169

# Impact if Authorization Rescinded

- Will force MURR to end production of medical isotopes needed by cancer victims, researchers, and industry
- Potential downstream effects to Medical Industry
- Loss of Income Will Delay HS Package Program and delay availability of compliant Type B packages to other industry users.
- Layoff of MURR Staff

# Summary

- Replacement Program in Critical Phase
  - MURR has invested heavily in the project to date
  - MURR is on track to invest millions more over the next two years to deploy a new package fleet
  - Inability to ship will directly harm the Replacement Program and the continued operation of MURR
- No expectation to ever earn the money back on sales of packages
  - Part of our responsibility to the medical and research communities

# Request

- As the University of Missouri, a not for profit public institution, it is our mandated mission to advance the life sciences and protect public health in the fight against cancer and other diseases.
- We ask that you permit us to fulfill this mission by allowing us to continue to provide life-saving medical isotopes to the American people and continue our package replacement efforts.

# Conclusion

What can MURR do to be allowed to continue to provide cancer victims, researchers, and industry access to these critically needed isotopes?

