



U.S. DEPARTMENT OF  
**ENERGY**

# Shuffler Project Update



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**EM** *Environmental Management*  
safety ♦ performance ♦ cleanup ♦ closure



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# Purpose

## Provide Shuffler Project Status

- History
- Californium Shuffler
- Project Status
- Project Performance



# History

- KAC mission includes the receipt and safe storage of Special Nuclear Material from other DOE sites
- SRS currently has no measurement capability to verify uranium content in a drum.
- SRS initiated a Project on February 12, 2008, to install a Californium (Cf) shuffler in K-Area.



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# Californium (Cf-252) Shuffler

- **The Californium shuffler allows SRNS to measure uranium in a drum configuration**
- **Californium source provides neutrons to interact with uranium creating prompt and delayed neutrons**
- **The shuffler uses high efficiency detectors to count delayed neutrons**
- **Uranium content of drum is obtained**



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# Before and After



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# Project Status

- **Procurement**

- Canberra fabricated the shuffler
- Factory Acceptance Test was completed in December 2009

- **Construction**

- A suitable location was identified for the shuffler installation within an existing Material Access Area (MAA)
- This location required considerable Dismantle and Removal work
  - Open concrete water seal
  - Removed 90 tons of concrete
  - Up to 5,000 pounds per block (3 ft x 10 ft x 1 ft)
- Construction activities were completed in June 2010
- Work was performed with no injuries or incidents
- Electrical, mechanical, heating and air conditioning, fire protection, security, and communication lines were required to make the room suitable for operations



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# Project Status

- **Shuffler Implementation**
  - Due to the presence of high density polyethylene inside the shuffler, additional measures were required to address fire scenarios
    - Credit shuffler design
    - Installed fire suppression in room
- **Start-Up**
  - Start-up testing of Shuffler was completed August 9, 2010
  - Declaration of Operations is forecast for September 22, 2010



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# Project Performance

- **Baseline: Total Project Cost - \$18.6 M**
- **Project Spent-to-date: \$17.1 M (thru June)**
- **Project is 95% complete**
- **Project is forecast to complete on schedule and under budget.**



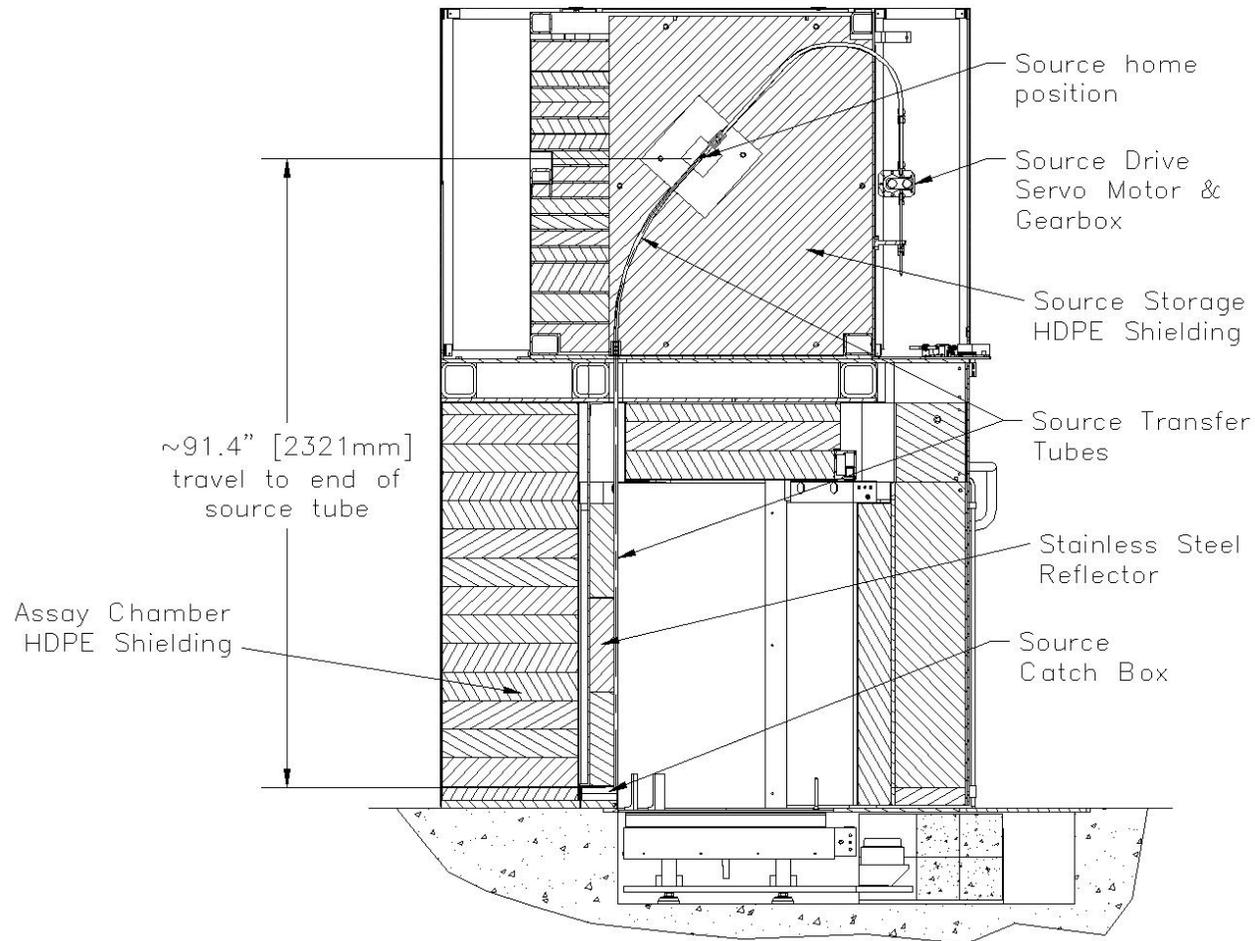
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# Backup Slides



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# Shuffler Schematic



# Pictures of D&R work

