HLW Management at the INL
Mark Shaw
Calcine is Solidified radioactive waste from Spent Fuel Reprocessing

- Converted the liquid high level waste into a granular solid using a thermal process referred to as calcination
- Resulted in a 7 to 1 volume reduction

- Calcine Properties
  - Mixed hazardous/high-level waste
  - Dry, friable powder that is dispersible and can be mobilized in both air and water
  - Stable noncorrosive form
Calcine Solids Storage Facility

Environmental Management
Calcine Solids Storage Facility

CSSF 1
Calcine Volume: 220 m³
Usable Capacity: 227 m³

CSSF 2
Calcine Volume: 850 m³
Usable Capacity: 850 m³

CSSF 3
Calcine Volume: 1,120 m³
Usable Capacity: 1,130 m³

CSSF 4
Calcine Volume: 486 m³
Usable Capacity: 486 m³

CSSF 5
Calcine Volume: 1,010 m³
Usable Capacity: 1,010 m³

CSSF 6
Calcine Volume: 713 m³
Usable Capacity: 1,506 m³

CSSF 7
Calcine Volume: 0 m³
Usable Capacity: 1,784 m³

Total: 4,400 m³ of calcine waste
(INEEL/EXT-93-00455, Rev.4 [Staiger and Swenson 2011])
Calcine Disposition Project Scope

- Design and construct processing facility using existing facility (Integrated Waste Treatment Unit) to the maximum extent practical

- Retrieve and transport 4,400 cubic meters of calcine from current storage in the Calcine Solids Storage Facilities

- Treat calcine to meet revised LDR requirement

- Ship for disposition or storage outside of Idaho by 2035
Calcine Path Forward

- **Calcine Disposition Project (CDP)** will be separate contract (with Spent Fuel (SF) Repackaging)

- **Scope:** Develop dual path approach to assess CDP path forward to ensure regulatory compliance. Pre-design and design of the CDP along with develop and submit Best Demonstrated Available Technology (BDAT) petition to EPA for the Hot Isostatic Press (HIP) process.

- **Contract Type:** Architecture and Engineering (A&E) Cost Plus Award Fee

- **Period of Performance:** October 1, 2015 – September 30, 2024