Northwest Medical Isotopes, LLC

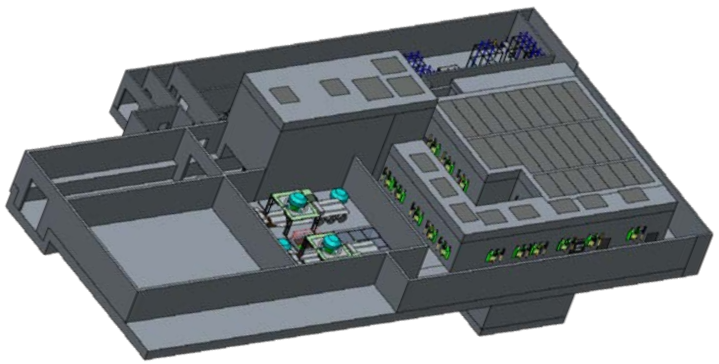
2018 Mo-99 Stakeholder Meeting

May 16, 2018

Primary Assumptions

Assure a Domestic, Secure, and Reliable Supply of Molybdenum-99 (^{99}Mo)

- Single radioisotope production facility → RPF
  - RPF includes target fabrication, ^{99}Mo production, and uranium recycle and recovery
  - ^{99}Mo produced by a fission-based method using LEU – "Gold standard for ^{99}Mo production"
  - Nominal capacity 3,500 6-day curies (Ci); surge capacity of 1,500 6-day Ci
- Use network of university reactors
  - Same LEU target design used for all reactors
  - Intellectual property obtained for LEU target
    - U.S., Australia, Russia, South Africa, Korea, Europe, India → Allowed
- Fission product releases will comply with environmental release criteria
- Generate Class A, B, and C wastes; no greater than Class C (GTCC) waste



NRC Licensing Strategy

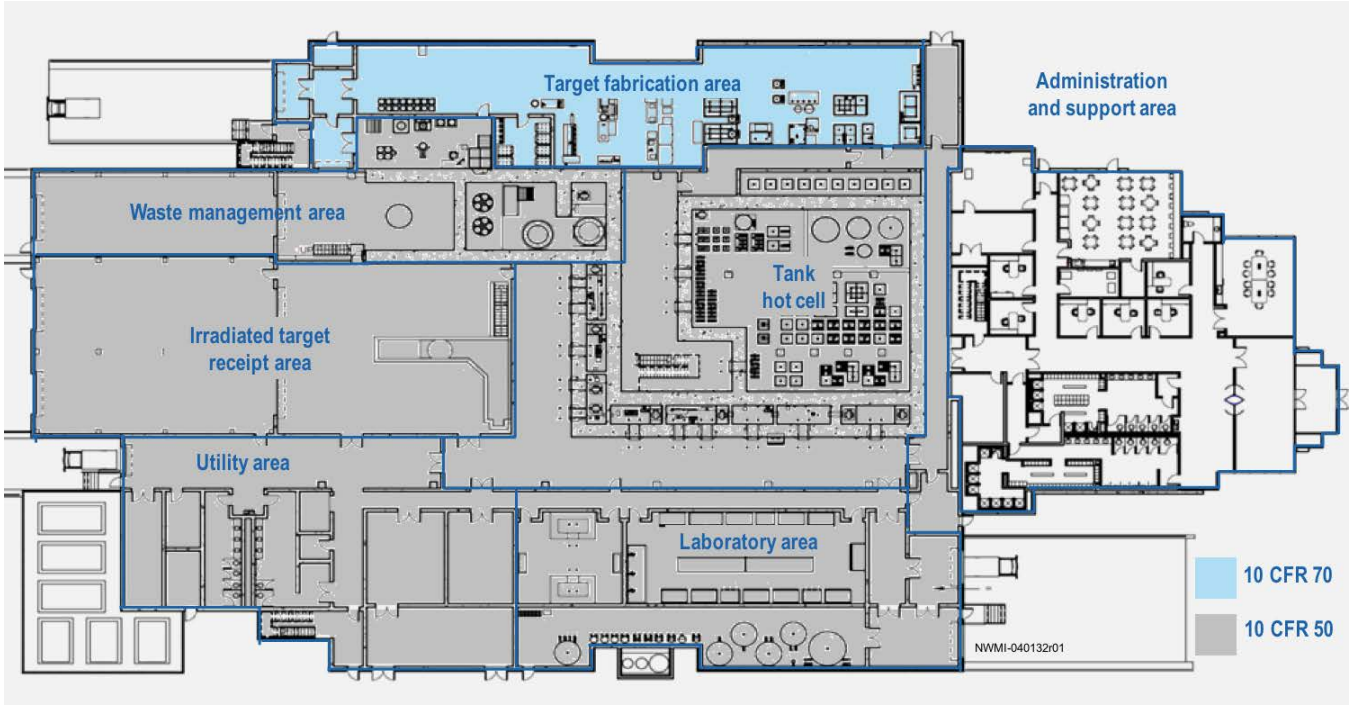
- Combine several license activities and submit one application that covers all applicable regulations for construction/operation of the RPF under 10 CFR 50

10 CFR 50 Activities
- Irradiated target receipt
- Irradiated target disassembly
- Target dissolution
- ^{99}Mo separations, purification, and packaging
- Uranium (U) recycle and recovery
- Waste management
- Associated laboratory and support

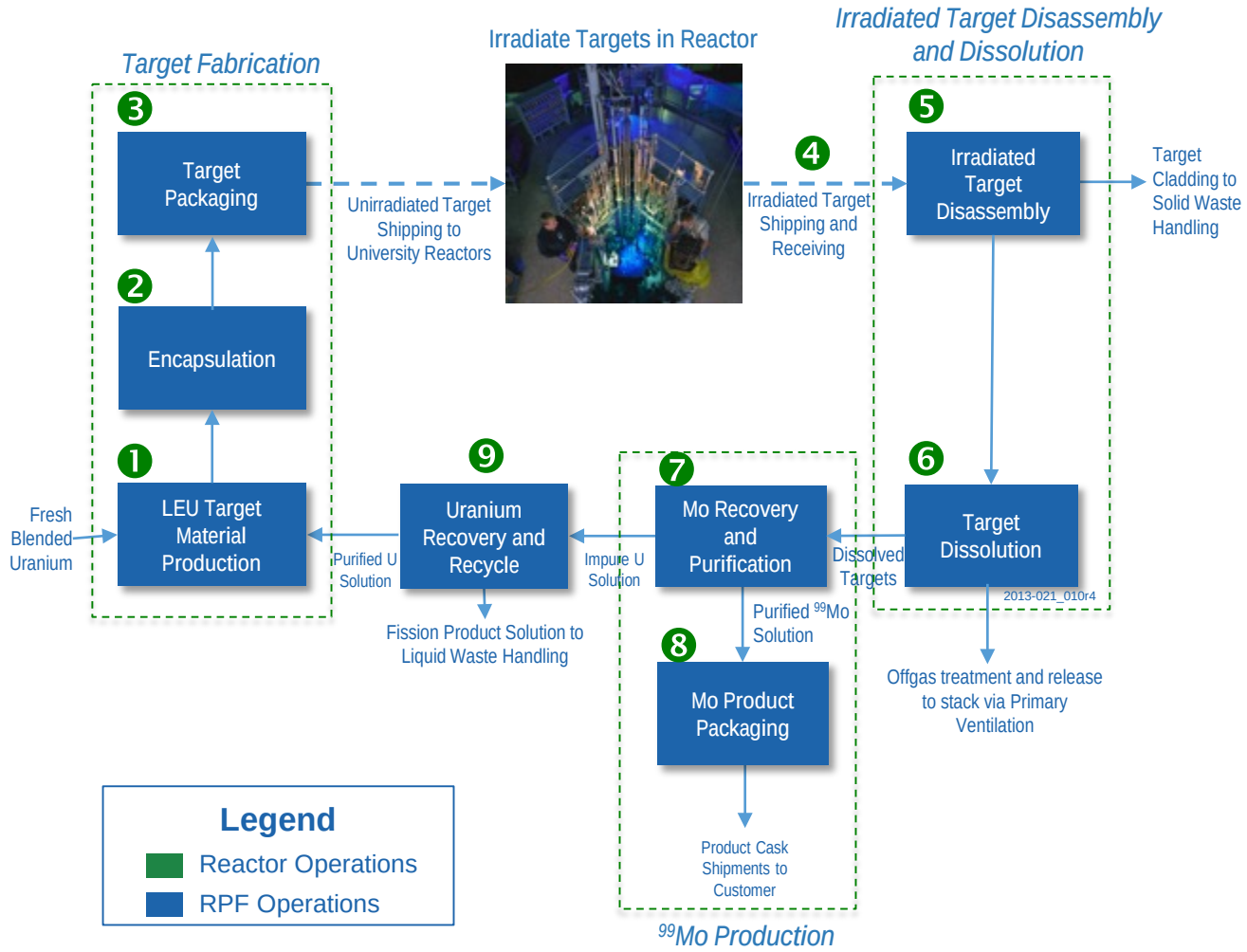
10 CFR 70 Activities
- Receipt of low-enriched uranium (LEU) (from DOE)
- Production of LEU microspheres
- Target fabrication and testing
- Shipping/loading of fabricated targets
- Laboratory and support areas

10 CFR 30 Activities
- Handling of byproduct material

- University reactor(s) and cask licensee(s) will amend their current operating licenses



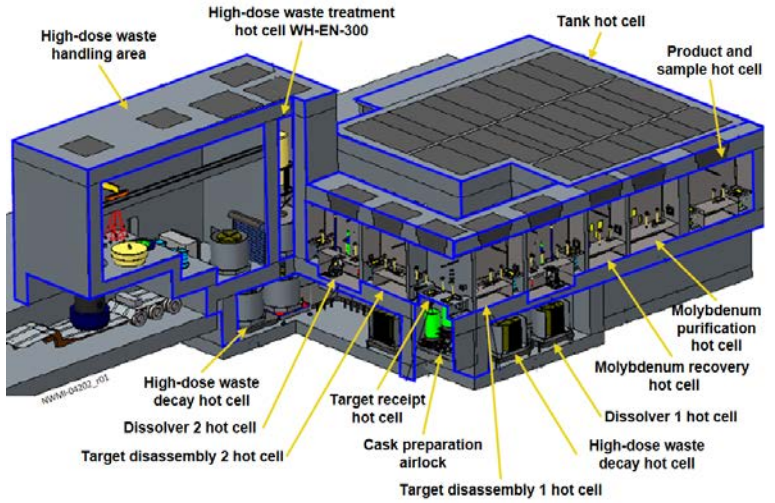
RPF Operating Characteristics



1. LEU target material is fabricated (both fresh LEU and recycled U)
2. LEU target material encapsulated using metal cladding → LEU target
3. LEU targets are packaged and shipped to university reactors for irradiation
4. After irradiation, targets are shipped back to RPF
5. Irradiated LEU targets disassembled
6. Irradiated LEU targets dissolved into a solution for processing
7. Dissolved LEU solution is processed to recover and purify ^{99}Mo
8. Purified ^{99}Mo is packaged/shipped to a radiopharmaceutical distributor
9. LEU solution is treated to recover U and is recycled back to Step 1

Project Status

- NRC Construction Permit (CP) Application Approved on May 9, 2018
- RPF Environmental Impact Statement published May 2018
- Initiated final design and NRC Operating License Application → Submission in Q4 2018
- Preconstruction activities initiated → Construction to be initiated in early Q3 2018
- Extensive testing (cold and hot chemistry) complete; optimization continues
- Continuing additional full-scale commercial generator testing



Questions?