U.S. Nuclear Regulatory Commission
Commission Mandatory Meeting

Environmental Panel

January 23, 2018

Development of Environmental Report

- Granted an exemption to submit the Construction Permit Application in two parts [Published in Federal Register (FR) on October 24, 2013 (78 FR 63501)]
- NRC conducted an independent evaluation of Part One of the Construction Permit Application and developed potential impacts of NWMI's proposed action
- Environmental Impact Statement Development Milestones
  - NWMI submitted Part One of Construction Permit Application: February 5, 2015
    - NRC acknowledged receipt: April 21, 2015 (80 FR 22227)
    - NRC published Notice of Docketing: June 8, 2015 (80 FR 32418) (ADAMS Accession No. ML15125A048)
  - Environmental Site Audit/Scoping Meeting: December 8 & 9, 2015 (Columbia, MO)
  - Draft EIS public comment period: November 1 – December 29, 2016 (Public meeting on December 6, 2016 in Columbia, Missouri)
  - Final EIS published May 31, 2017 → NUREG-2209, *Final Environmental Impact Statement for the Construction Permit for the Northwest Medical Isotopes Radioisotope Production Facility* (ADAMS Accession No. ML17130A862)

Proposed Action

- Decide whether to issue a construction permit under 10 CFR 50 that would allow construction of the NWMI medical radioisotope production facility (RPF)
- If a construction permit is granted by NRC, NWMI could build the proposed facility at the 3 hectare (7.4-acre) Discovery Ridge Research Park (Discovery Ridge) site, in Boone County, Columbia, Missouri
- NWMI RPF activities include:
  - Fabricating low-enriched uranium (LEU) targets (including uranium recycle and recovery)
  - Shipping targets to university research reactors
  - Irradiating LEU targets at university research reactors
  - Returning targets to RPF
  - LEU target dissolution
  - Molybdenum-99 (^{99}Mo) recovery and purification

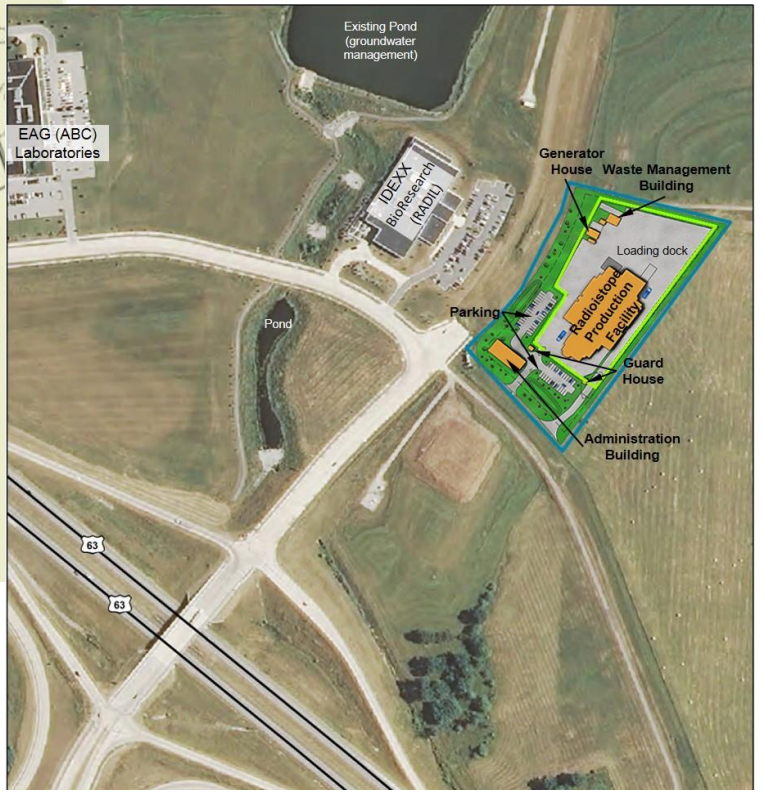
Consultations

- Advisory Council on Historic Preservation
- Boone County Government Center
- City of Columbia, Missouri
- Mid-Missouri Regional Planning Commission
- Missouri Department of Conservation
- Missouri Department of Health and Senior Services
- Missouri Department of Natural Resources
- Missouri Department of Public Safety
- Missouri Department of Transportation
- U.S. Fish and Wildlife Service
- U.S. Department of Energy
- Tribal Nations → 31

Alternative Site Locations Evaluated by NWMI

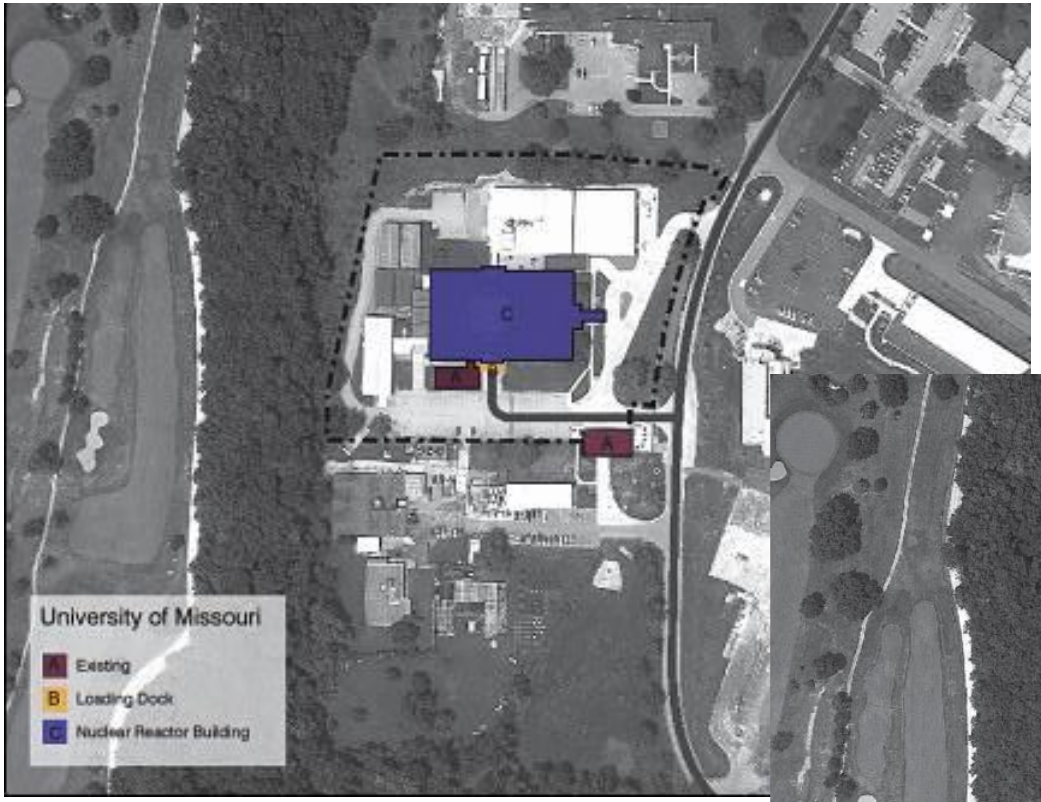
- University of Missouri Research Reactor (MURR) – Columbia, MO
- Discovery Ridge Research Park – Columbia, MO
- Oregon State University (OSU) – Corvallis, OR
- McClellan Business Park (McClellan) – Davis, CA
  - University of California at Davis (UC Davis) Research Reactor located at McClellan

Discovery Ridge Layout



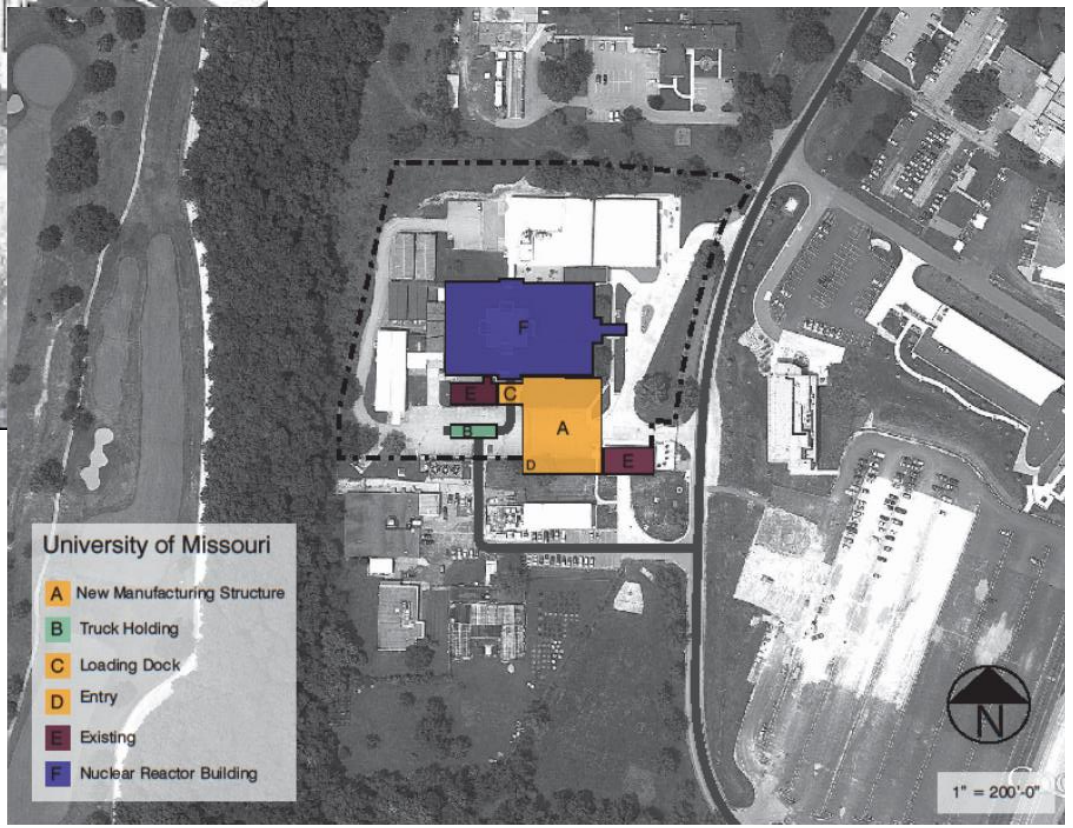
- RPF will be located on Lot 15 → 7.4-acre
  - No existing structures
  - Used for agriculture for past century
- NWMI "anchor" for radioisotope ecosystem; two existing companies

MURR RPF Layout



Current MURR Layout

Preliminary RPF Layout



Alternative Technologies/Alternatives Evaluated by NRC

Alternative Technologies

- Neutron capture technology
- Aqueous homogenous reactor technology
- Selective gas extraction technology
- ***Uranium fission technology***
- ***Linear accelerator-based technology***

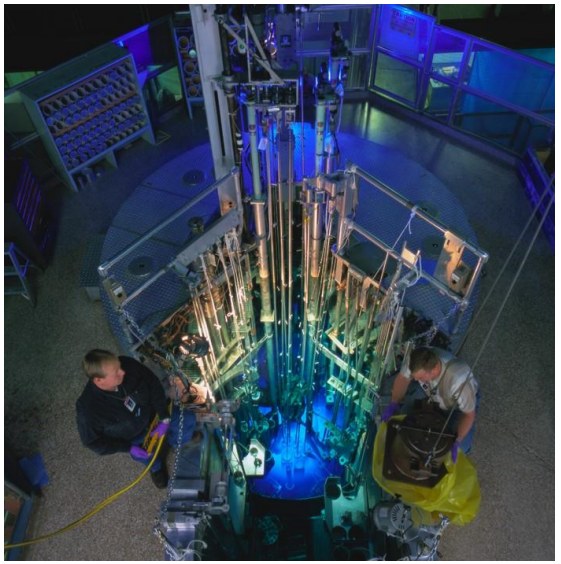
Alternatives Evaluated

- No-action alternative
- NWMI RPF at University of Missouri Research Reactor site (alternative site)
- Linear accelerator-based facility at Discovery Ridge site (Alternative Technology No. 1)
- Subcritical fission-based facility at Discovery Ridge site (Alternative Technology No. 2)

Connected Actions – University Research Reactor

Connected Actions (continued)

- Few facility modifications will be required
- No exterior construction anticipated for any reactor
- No changes in land use
- Minimal changes in staffing
- Authorization for possession and use of targets will be promulgated under the license amendment process for each facility
  - MURR → early 2018
  - OSU → early 2019
- Third facility has been selected but not socialized



Environmental Impact Summary

Environmental Impact Summary

	NWMI RPF at Discovery Ridge	NWMI RPF at MURR	Linear Accelerator-Based Technology at Discovery Ridge	Subcritical Fission-Based Technology at Discovery Ridge	No Action
Construction Impacts	• SMALL impacts to all resource categories • No historic properties affected	• SMALL to MODERATE impacts to all resource categories • Potential adverse effect to historic properties	• SMALL impacts to all resource categories • No historic properties affected	• SMALL impacts to all resource categories • No historic properties affected	• SMALL impacts to all resource categories • No historic properties affected
Construction Benefits	• ~100 jobs (on average) • Annual tax payment of $2.5M	• ~100 jobs (on average) • Annual tax payment of $2.5M	• ~100 jobs(on average) • Annual tax payment of $2.5M	• ~100 jobs (on average) • Annual tax payment of $2.5M	None
Operation Impacts	• SMALL impacts to all resource categories	• SMALL impacts to all resource categories	• SMALL impacts to all resource categories	• SMALL impacts to all resource categories	• SMALL impacts to all resource categories
Operation Benefits	• ~125 jobs • Reliable source of ^{99}Mo for medical uses • Annual tax payment of $2.5M	• ~125 jobs • Reliable source of ^{99}Mo for medical uses • Annual tax payment of $2.5M	• ~125 jobs • Reliable source of ^{99}Mo for medical uses • Annual tax payment of $2.5M	• ~125 jobs • Reliable source of ^{99}Mo for medical uses • Annual tax payment of $2.5M	None

Questions?