



## **The Regulators View for the Successful Research Reactor Decommissioning**

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## **NRC Regulations**

- 10 CFR Part 20 Subpart E “License Termination Rule
- 10 CFR Part 50 – Operating License

## U. S. Research Reactors

- Presently - 11 Research Reactors in Decommissioning Status
- Since 2003 - 11 Research Reactors decommissioned and licenses terminated

# Communications

- Local Community
- Local Residents
- University Campus
- Project Progress Reports
- Keep State and NRC informed

## Project Security

- Personnel Barriers - Industrial Fences
- Personnel Access Control
- Local Law Enforcement
- Routine Security Patrols
- Off hours and Weekend security

## Characterization

- Radionuclide and Chemical History
- Operational History
- Spill History
- Leak History
- Reactor Internals and Neutron Activation
- Hazardous Materials

## Decommissioning Plan

- Quality and Level of Detail
- Oversight and QA
- Checklist in NUREG 1537 Standard Review Plan
- Details in NUREG 1757 Consolidated Decommissioning Guidance
- Radiological Process in NUREG 1575 MARSSIM
- Final Status Survey Plan

## **NRC Review and Approval Process**

- Receipt of Decommissioning Plan
- Acceptance of Plan – 30 Days
- Federal Register Notice – 60 days
- Detailed Technical Review – 120 Days
- Safety Evaluation Report – Approval
- License Amendment
- Federal Register Notice
- Goal – Approval in 1 year

# Waste Management

- Waste Categorization & Disposal Facility
- Waste Streams
- Waste Processing
- Waste Staging and Interim Storage
- Transportation
- Hazardous waste
- Mixed waste
- 20.2002 Alternative Disposal Request in DP or individual request

# Hazardous Materials Assessment

- Asbestos
  - Insulation
  - tile/mastic
- Lead
  - Shielding
  - Pre-1978 paint
- Fluorescent Lighting
  - Mercury in lamps light ballasts [I think in the tubes, not the ballasts]
  - PCBs in pre-1979 ballasts
- Historical chemical use

## Public Protection and Perception

- Establishing Baseline Background
- Environmental TLDs
- Non-occupational exposures
- Contamination Control
- Airborne Radioactivity Controls & Monitoring
- Effluent Monitoring

## Management Involvement

- Sr. Management Oversight - Tours, Visits, Meetings
- Management Assessments
- Decommissioning Oversight Committee (Former Reactor Safety Committee)
- DOC Onsite Meetings and Facility Tours

## Project Administration

- Onsite Project Management
- Clear Stop Work Authority
- Contractor Oversight
- Experienced Decommissioning Contractor (licensed)
- Key Personnel – Qualifications
- Quality Assurance Audits/Surveillances

# Radiation Safety Officer Oversight

- Approves work process (RWP)
- Release of Materials per I&E Notice 81-07
- Approves Radioactive Waste Manifests
- Directs HP Technicians
- Ensures procedure adherence
- Reviews and approves Radiological Surveys

## **Radiation Protection Oversight**

- Independent checks of instrumentation
- Verification of surveys of materials released
- Observes HP techs and Rad workers in the field
- ALARA and Posting Reviews
- Environmental Surveillance Surveys

## Radiological Surveys

- In-process Beta and Gamma surveys of structures
- Activated metal and concrete
- Gamma surveys of floor joints, cracks, etc...
- Final Status Surveys & Reports

## Dose Modeling

- Scenario Determination – Decommissioning End Point
- DCGLs – Site Specific or Screening Values
- Evaluation of Groundwater pathway
- NRC / EPA MOU Trigger Levels
  - Eu-152
- State unrestricted release criteria

## Inspection Program

- Regional Office – integrate project into the Master Inspection Plan
- Inspection Manual Chapters
- High Risk Work Evolutions
- In-process and Confirmatory Surveys (ORISE)

## Project Schedule

- Mobilization of contractors
- Training of Decommissioning workers
- Component Dismantling
- Component Staging
- Radioactive waste staging
- Waste Shipments

## Conclusions

- License Termination Regulations are flexible for Research Reactor decommissioning
  - Strong preference for immediate dismantlement
- License Termination Rule has been implemented for 15 years.
- NRC Guidance continues to evolve as lessons are learned.
- States may require additional restrictions beyond the License Termination Rule