

The Regulator's View for the Successful Research Reactor Decommissioning

2017 Health Physics Society Midyear Meeting

January 25, 2017

John Hickman, Theodore Smith, & Bruce Watson, CHP
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery and Waste Programs

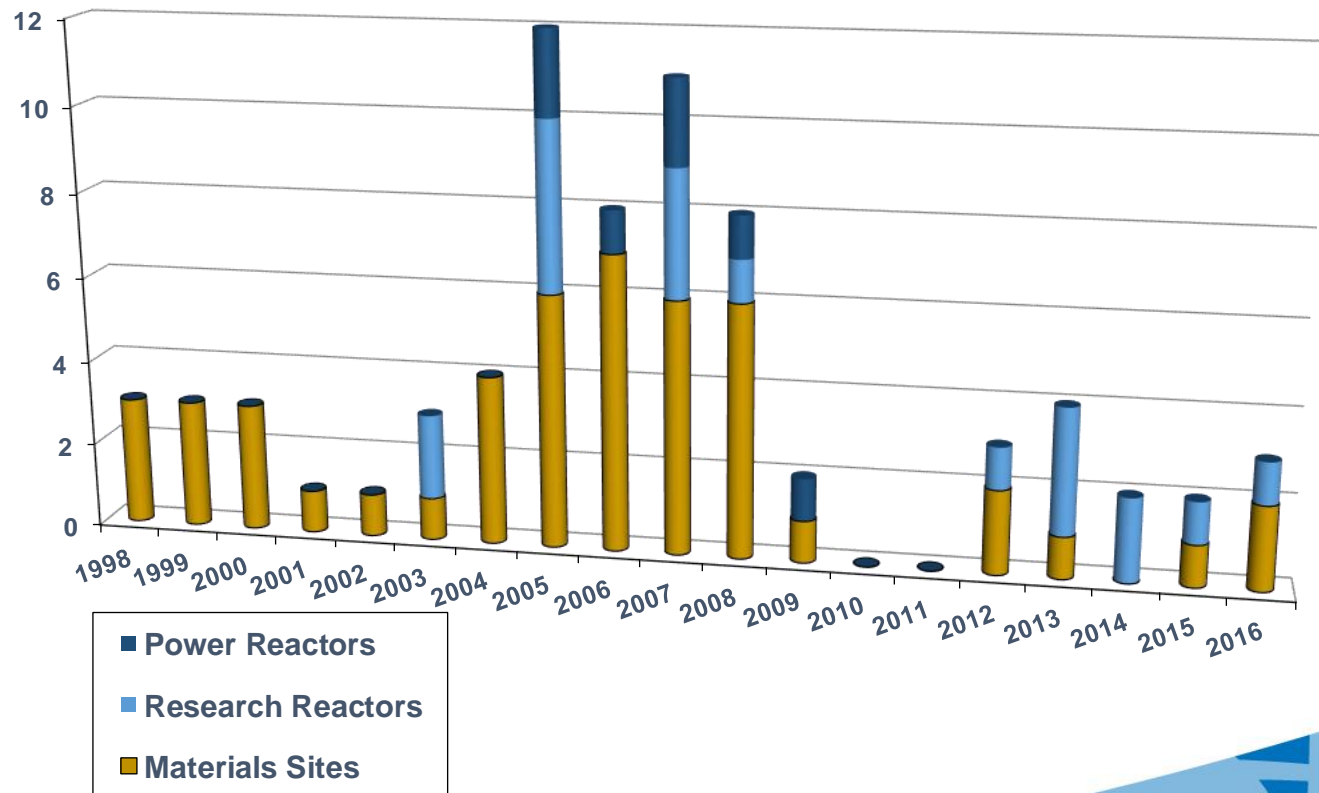
Topics

- Decommissioning Regulations
- NRC Experience
- Stakeholder/Communications
- Project Security
- Decommissioning Plan
- Characterization/hazards
- Project Management
- Public Issues
- Rad Protection Program
- Inspection Program
- Conclusions

NRC Regulations

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

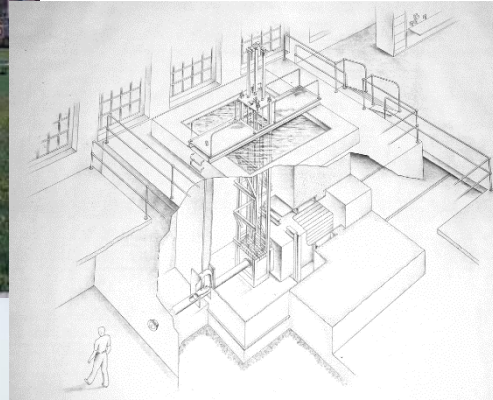
NRC Decommissioning Experience



U. S. Research Reactors

- Currently - 31 Operating Research Reactors
- Presently – 4 Research Reactors in Decommissioning Status
- Since 2003 – 17 Research Reactors decommissioned and licenses terminated

Decommissioning Challenges



Stakeholder Involvement

- City/Town Elected Officials
- Local Resident Impacts
- Fire, Police and Emergency Response
- Re-establish relationships/agreements

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

Radiological Characterization

- Radionuclide and Chemical 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 Surveys in NUREG 1575 MARSSIM
- Final Status Survey Plan

NRC Review and Approval Process

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

Waste Management

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

Hazardous Materials Assessment

- Asbestos Insulation
- Asbestos in tile/mastic
- Lead
- lead paint
- Mercury in light ballasts
- Historical chemical use

Public Protection and Perception

- Establishing Baseline Background
- Environmental TLDs
- Non-occupational exposures
- Contamination Control
- Airborne Radioactivity Controls
- 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 IE Circular 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
- Gamma surveys of floor joints, cracks, etc...
- Activated metal and concrete
- Final Status Survey Reports

Dose Modeling

- Scenario Determination – Decommissioning End Point
- Derived Concentration Guideline Levels – Site Specific or Screening Values
- NRC / EPA Memorandum of Understanding Trigger Levels
- “States” may have more conservative 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 (ORAU)

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
- License Termination Rule has been implemented for ~20 years.
- NRC Guidance continues to evolve as lessons are learned.
- Many challenges can be avoided by planning and communications

NRC Decommissioning

- 20 Power Reactors
- 4 Research Reactors
- 13 Complex Materials Sites
- West Valley Demonstration Project
- 21 Title I & 11 Title II UMTRCA sites
- 6 Title II sites that have transferred to DOE

Questions?

Reactor Decommissioning Branch



Carpe Cesium

AKA,
The Dead Reactor Society