



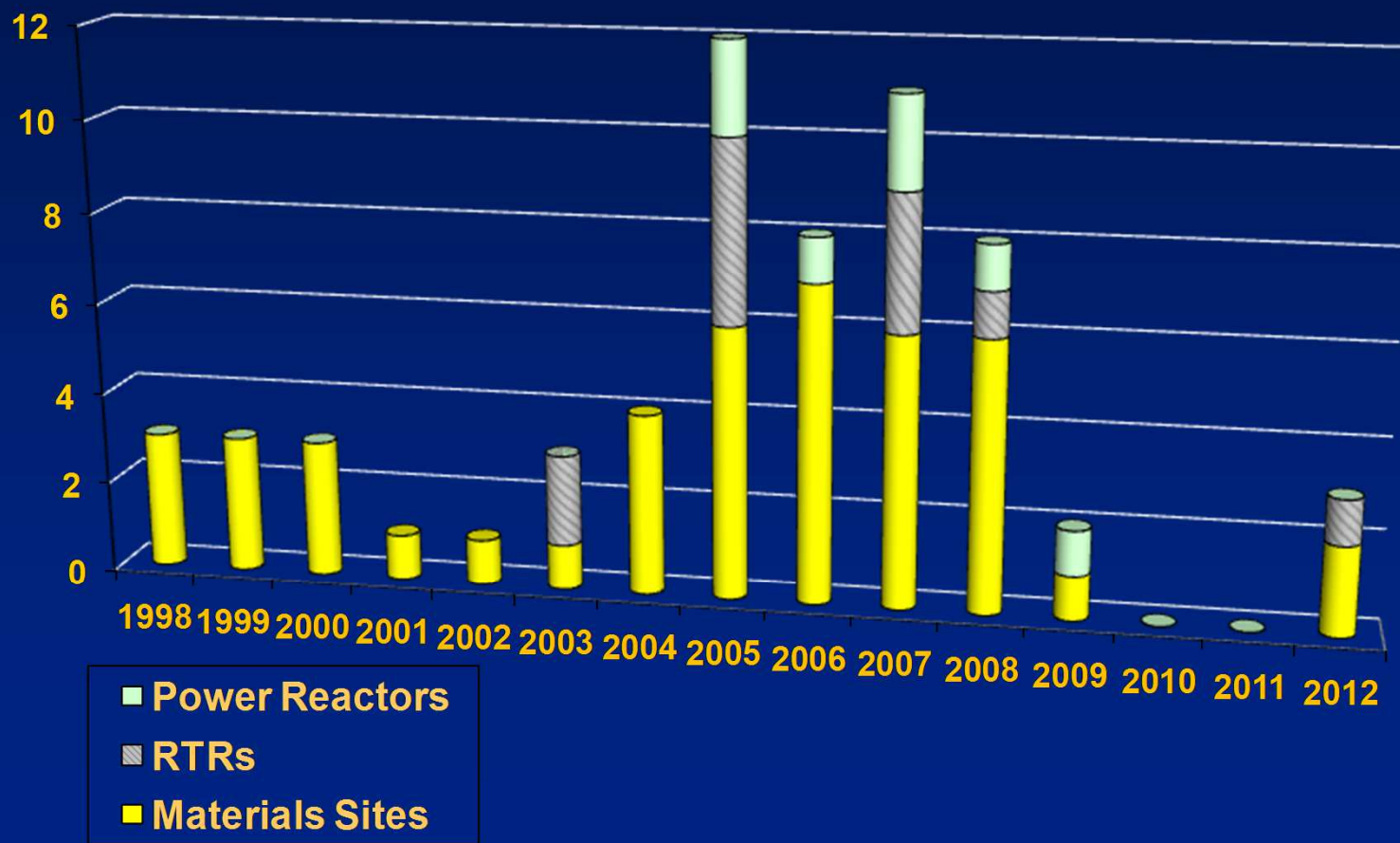
**The Regulators View for Successful  
Research Reactor Decommissioning  
IAEA R2D2 Project Meeting  
Buffalo, New York 2012**

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## **NRC Regulations**

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

# US NRC Decommissioning



## **U. S. Research Reactors**

- Currently - 31 Operating Research Reactors
- Presently - 11 Research Reactors in Decommissioning Status
- Since 2003 - 11 Research Reactors decommissioned and licenses terminated

## 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

## 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
- Environmental Report (consultation with State Agencies)
- 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
- Detailed Technical Review – 120 Days
- Safety Evaluation Report – Approval
- License Amendment
- Federal Register Notice
- Goal – Approval in 1 year

# Waste Management

- 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
- 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

## RTR 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
- Gamma surveys of floor joints, cracks, etc...
- Activated metal and concrete
- Final Status Survey Reports

## Dose Modeling

- Scenario Determination – Decommissioning End Point
- DCGLs – Site Specific or Screening Values
- NRC / EPA MOU Trigger Levels
- 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
- License Termination Rule has been implemented for 15 years.
- NRC Guidance continues to evolve as lessons are learned.

## **NRC Decommissioning Universe**

- 12 Power & 2 Early Demonstration reactors
- 11 Test, Training, & Research reactors
- 21 Complex Materials sites
- WVDP
- 21 Title I & 11 Title II UMTRCA sites
- 6 Title II sites that have transferred to DOE