Overview of NRC's Office of Nuclear Regulatory Research (RES)

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C.E. Carpenter, Group Lead for Aging Management Issues
Office of Nuclear Regulatory Research

NRC/JNES Bilateral Information Exchange Meeting
Tokyo, Japan

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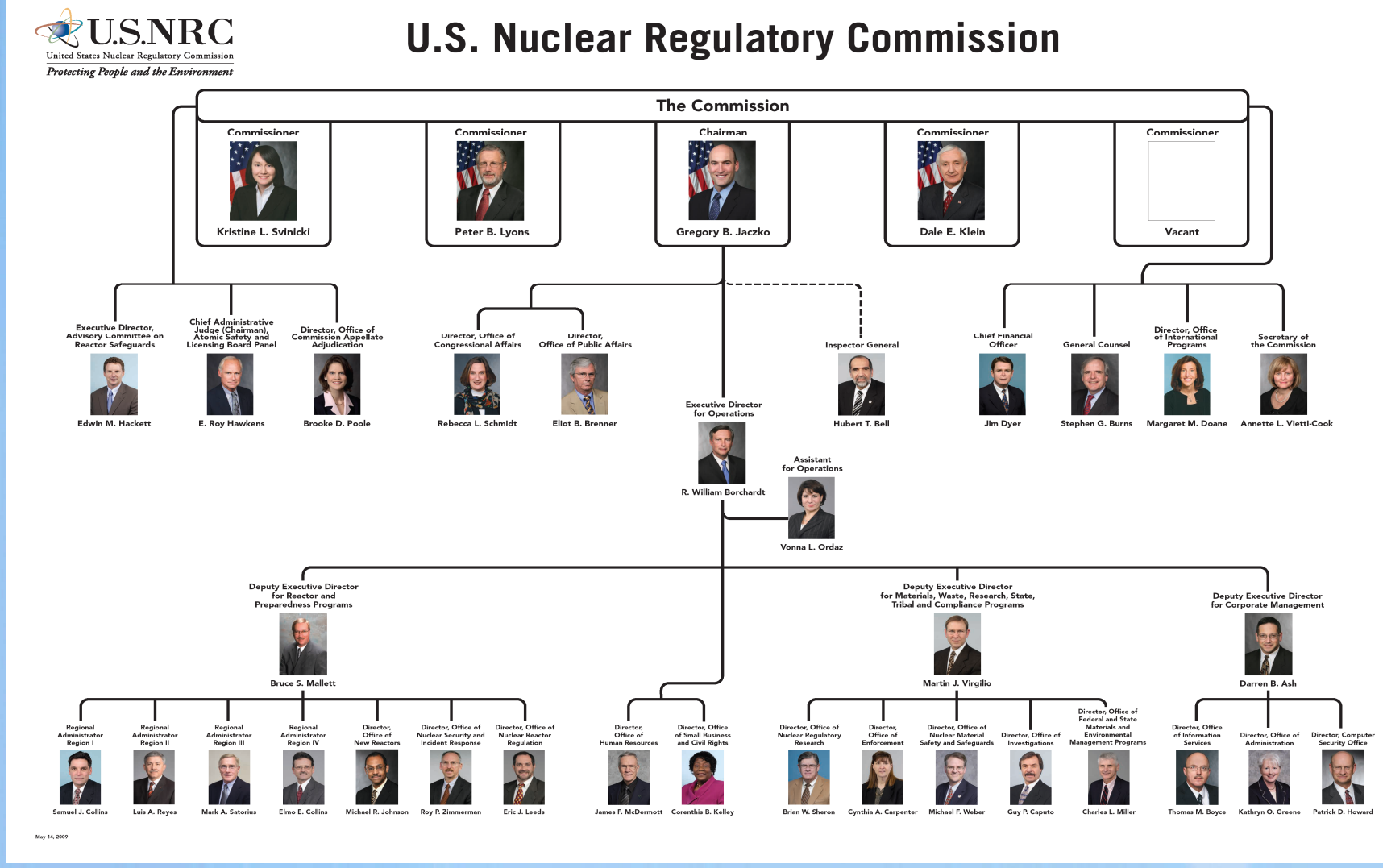
NRC Organization



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NRC's Office of Nuclear Regulatory Research (RES)

Who We Are:

- Major NRC program office
- Mandated by Congress
- About 240 staff, >$70M funding
- Engineers, scientists, analysts
- Located at NRC HQ, Rockville, MD

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RES: What We Do

- Recommend research needed for licensing or other regulatory purposes
- Conduct or contract for research as directed
- Maintain significant in-house capability to conduct analysis
- Identify and resolve safety issues for current and new designs and technologies

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Why Perform Research?

- Support regulatory decisions on nuclear reactors, nuclear materials, and radioactive waste
- Provide technical support, technical tools, and information to identify and resolve safety issues for current and new designs and technologies
- We accomplish this through:
  - Testing
  - Tool and data development
  - Analyses
  - National and International Collaboration

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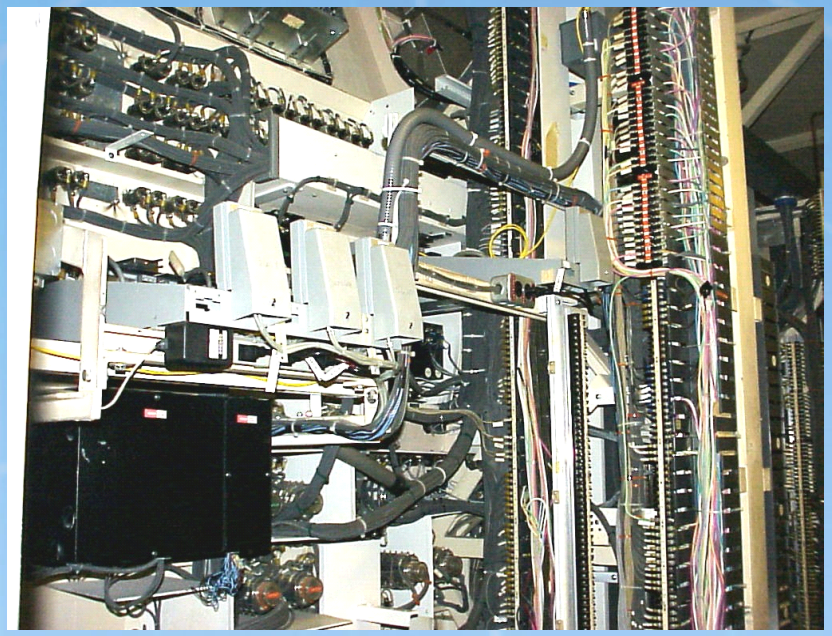
Principal Areas of Research

- Integrity of reactor systems and components
- Aging-related effects on systems and components
- Safety assessment of digital systems
- Human performance
- PWR sump performance



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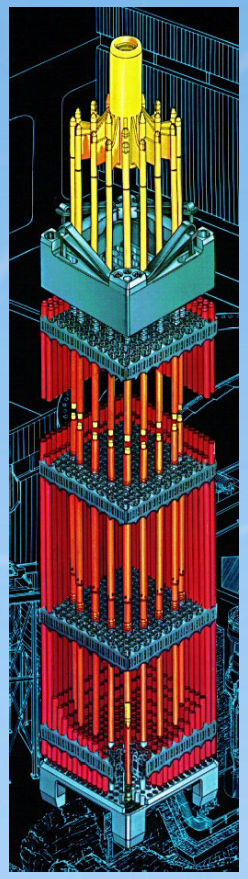
Principal Areas of Research

- New Reactors
- Probabilistic Risk Analysis and Standardized Plant Analysis Risk (SPAR) Model
- Grid Reliability
- Pressurized Water Reactor Sump Screens – Chemical Effects
- Fire Protection
- Licensing Support and Casework



- Technical Bases for Rulemakings
- Analysis of Operating Events
- Regulatory Guide Revision
- Human Reliability and Human Factors
- Materials Integrity
- Fuel Performance
- Fuels

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Principal Areas of Research

- Decommissioning
- Dry Cask Storage
- Licensing Support and Casework
- Package Performance Study
- Regulatory Guide Revision
- Technical Bases for Rulemakings
- Cask Burnup Credit
- Radiation health effects
- Radionuclide transport and decommissioning
- Security
- Emergency Preparedness
- Incident Response
- International and Domestic Research Agreements
- Generic Safety Issues
- Abnormal Occurrence Report
- Industry Consensus Standards
- Risk Communications
- Safety Culture

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Key Activities for the Future

- Aging
- Risk-Informed Regulations
- Advanced Reactors
- New Technology
- Security Assessments