



TH 37: Unique Aspects of Regulating Research and Test Reactors

### Licensing Activities for Non-Power Reactors and Radioisotope Production Facilities

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### U.S. Research and Test Reactors

- 31 operating reactors
- 6 shutdown reactors
- Power range 5 W - 20 MW
- Five are 2 MW or greater
- Reactor types – 16 TRIGA, 3 AGNs, 9 plate-type fuel, 3 one-of-a-kind (PULSTAR, Argonaut, critical assembly)



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### Legislative Authority

- Congressional Action
- Significant laws
  - Atomic Energy Act of 1954
  - Energy Reorganization Act of 1974
  - Nuclear Waste Policy Act of 1982
  - Energy Policy Acts of 1992 & 2005



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**Research and Test Reactors Licensing Branch**

- Conduct licensing reviews
  - Construction permits
  - Operating licenses
  - Amendments
  - Medical production facilities
  - Renewals
  - High to low enriched uranium conversions
  - Transfers
- Develop licensing guidance
  - Standard review plan
  - Application format and content
- Interface with outside organizations (e.g., IAEA, licensees, ANS, other government agencies)

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**Research and Test Reactors Oversight Branch**

- Facility inspections
- Reactor operator licensing
- Security
- Inspection and operator licensing guidance
- Enforcement
- Emergency response



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**License Renewals**

- Recently completed - DOW
- Continued Progress
  - UC Irvine
  - TAMU TRIGA
  - AFRR
  - MURR
  - TAMU AGN
  - Texas
  - Maryland
  - Rhode Island
  - USGS
  - Purdue
  - Florida

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**Licensing Update on Medical Radioisotope Production Facilities**

- Construction Permit (CP) Applications
  - SHINE Medical Technologies
  - Northwest Medical Isotopes
- License Amendment Request Oregon State Univ.
- Materials License Request from Niowave
- Three more letters of intent after March 2014 (Precision Engineering, Zevacor Molecular, Niowave), resulting in 9 pending intent letters
- Coqui plans to submit a CP application in 2015
- Modified 10 CFR definition of utilization facility

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**Status of SHINE Review**

- Reviewing SHINE responses to RAls
- Upcoming Milestones
  - Draft & Final Environmental Impact Statements
  - Safety Evaluation Report
  - Advisory Committee on Reactor Safeguards
  - Notice of Mandatory Hearing & Opportunity to Participate in a Contested CP Hearing

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**Status of Northwest Medical Isotopes (NWMI) Application**

- Received Part 1 of CP Application (Environmental Report)
- Upcoming Milestones
  - Receive remainder of CP application: Preliminary Safety Analysis Report



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### Ongoing Infrastructure and Support Activities for Medical Radioisotope Production Facilities

- Developing inspection program for construction and operation of <sup>99</sup>Mo facilities
- Assessing need for other regulatory actions
- Maintain communication
  - National Nuclear Security Administration
  - State and local government
  - Public

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### Regulatory Enhancements for Research Reactors

- Developing rulemaking to streamline license renewal
- Updating NUREG-1537 guidance
- Using modern codes for neutronic and thermal-hydraulic analysis



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### Summary

- NRC licenses a diverse set of non-power facilities
- Radioisotope facility reviews have started
- Complete renewals and plan for the future



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