



# Preliminary Results of Environmental Review Vermont Yankee Nuclear Power Station

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U.S. Nuclear Regulatory Commission  
February 27, 2007





# Purpose of Today's Meeting

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- Discuss NRC's license renewal process
- Describe the environmental review process
- Discuss the results of our review
- Provide the review schedule
- Describe how to submit comments
- Answer questions from Vermont Legislators



# NRC's Regulatory Oversight

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- Atomic Energy Act
  - Issue operating licenses for commercial nuclear power reactors
  - Regulate civilian use of nuclear materials
- NRC's Mission
  - Public health and safety
  - Promote common defense and security
  - Protect the environment

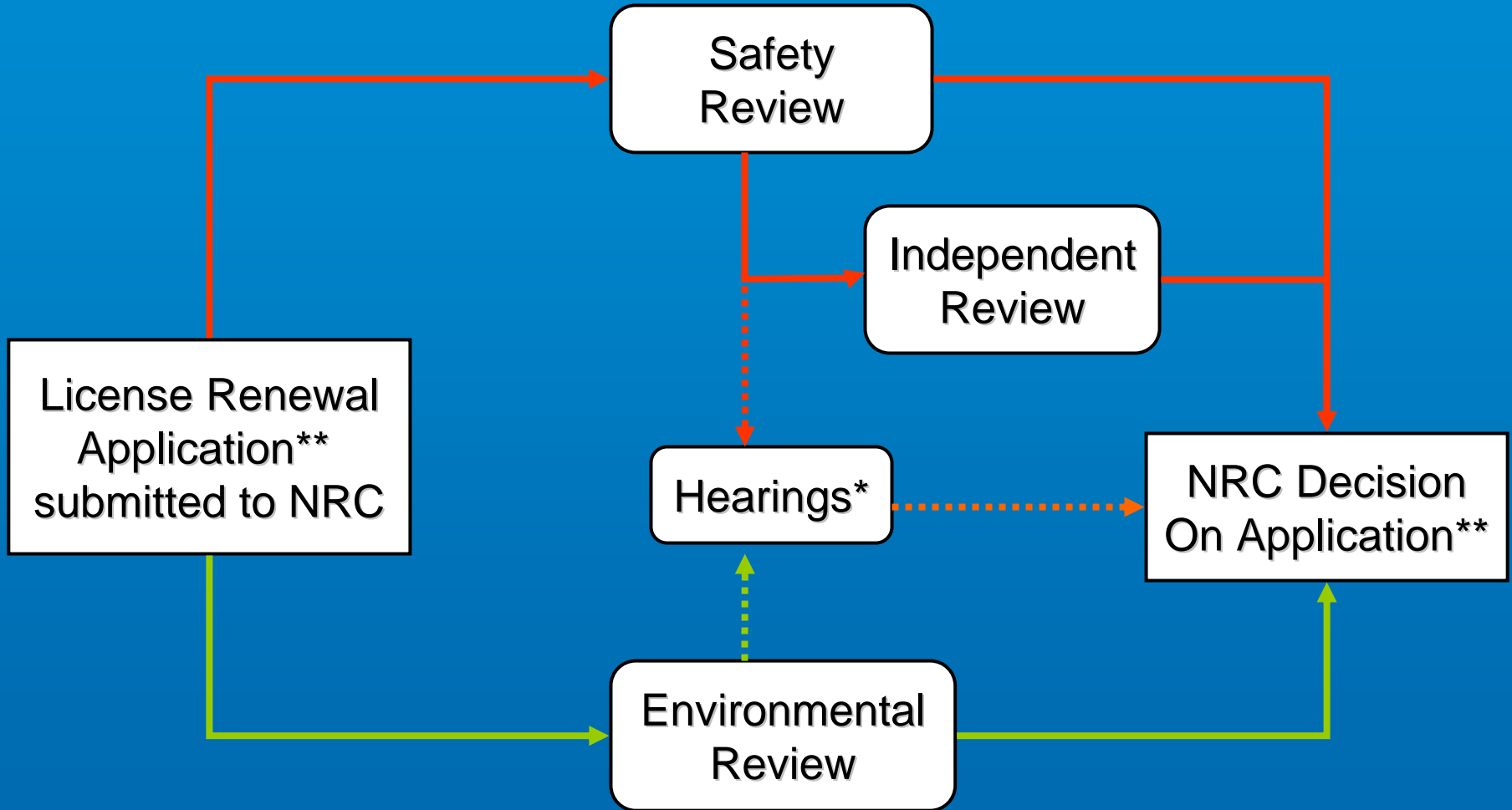


# Vermont Yankee Nuclear Power Station License Renewal

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- Operating license expires March 21, 2012
- Application requests authorization to operate Vermont Yankee for an additional 20 years

# License Renewal Process



\* Request for Hearing is Granted

\*\* Available at [www.nrc.gov](http://www.nrc.gov)



# Safety Review Process (10 CFR Part 54)

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- Safety Review
  - Review of application and supporting documentation
  - On-site audits
  - On-site inspections
  - Issuance of Safety Evaluation Report (SER)
- Independent review by the Advisory Committee on Reactor Safeguards



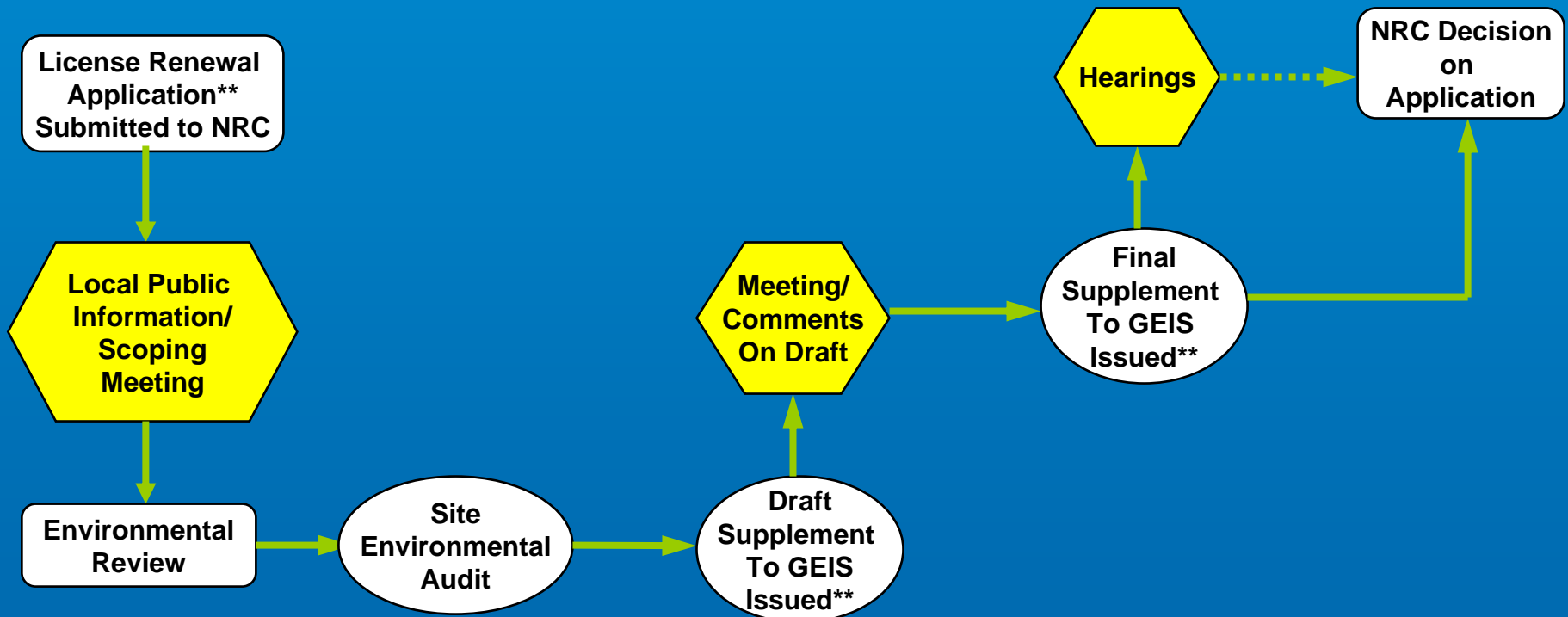
# Ongoing Regulatory Oversight

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- Emergency Planning
  - 10 CFR 50.47
- Security
  - 10 CFR Part 73
- Current Safety Performance
  - <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>



# Environmental Review Process



\*\* Available at [www.nrc.gov](http://www.nrc.gov)





# Environmental Review (10 CFR Part 51)

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- National Environmental Policy Act requires Federal agencies to use a systematic approach to consider environmental impacts
- NRC prepares an Environmental Impact Statement (EIS) for all proposed license renewals
- Scope
  - Generic Environmental Impact Statement (GEIS)
  - Site-specific Supplemental Environmental Impact Statement (SEIS)
    - Focused on assessment of site-specific issues
    - The staff also looks for new and significant information on generic conclusions reached in the GEIS



# Decision Standard for Environmental Review

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To determine whether or not the adverse environmental impacts of license renewal for Vermont Yankee Nuclear Power Station are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.



# Vermont Yankee Environmental Review Milestones

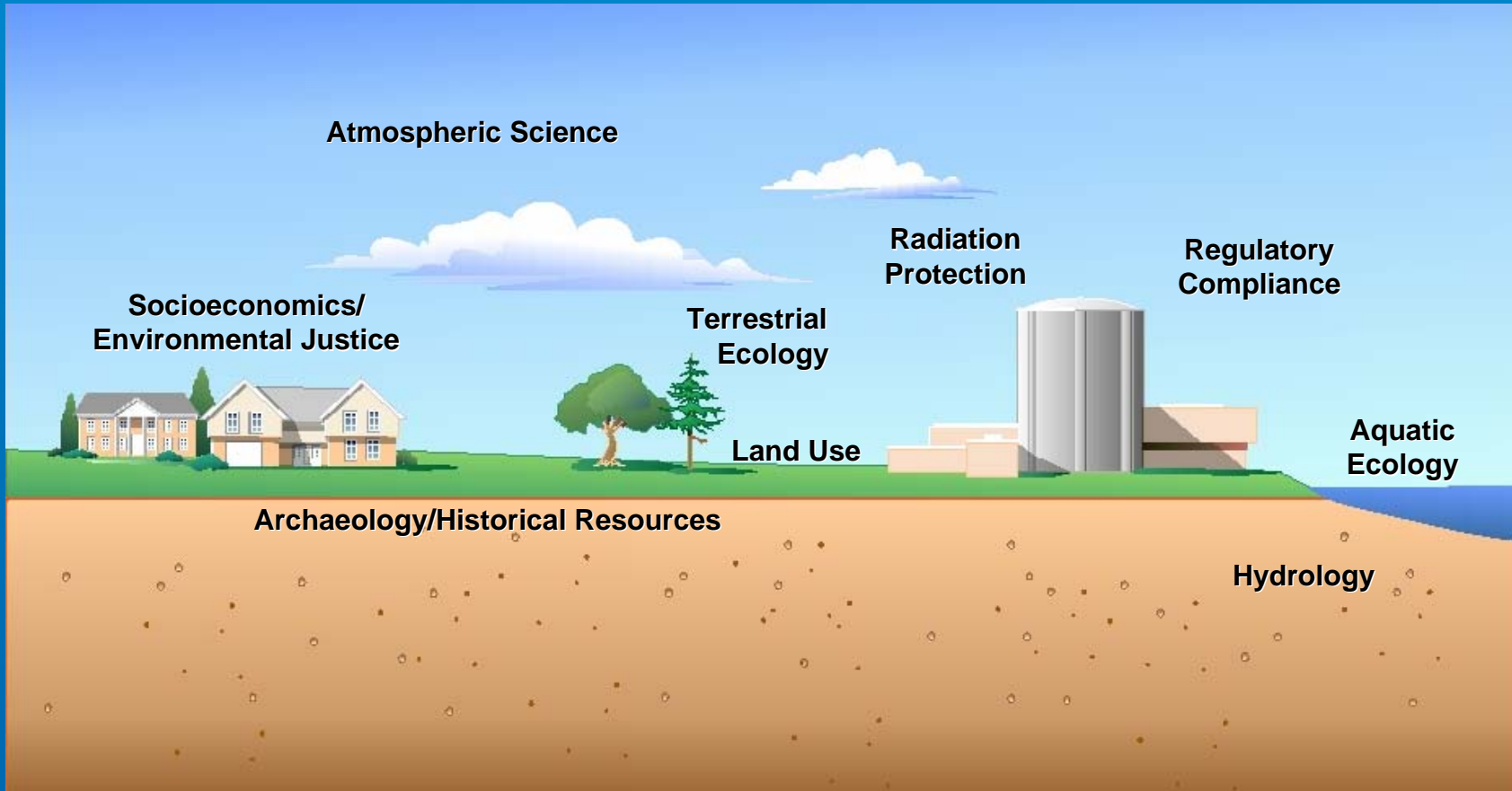
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<b>Application Submitted</b>	January 27, 2006
<b>Notice of Intent</b>	April 21, 2006
<b>Scoping Public Meeting</b>	<b>June 7, 2006</b>
<b>Scoping Comments Due</b>	<b>June 23, 2006</b>
Scoping Summary Report	October 30, 2006
Draft SEIS Issued	December 13, 2006
<b>Draft SEIS Public Meeting</b>	<b>January 31, 2007</b>
<b>Draft SEIS Comments Due</b>	<b>March 7, 2007</b>
Final SEIS Issued	August 2007



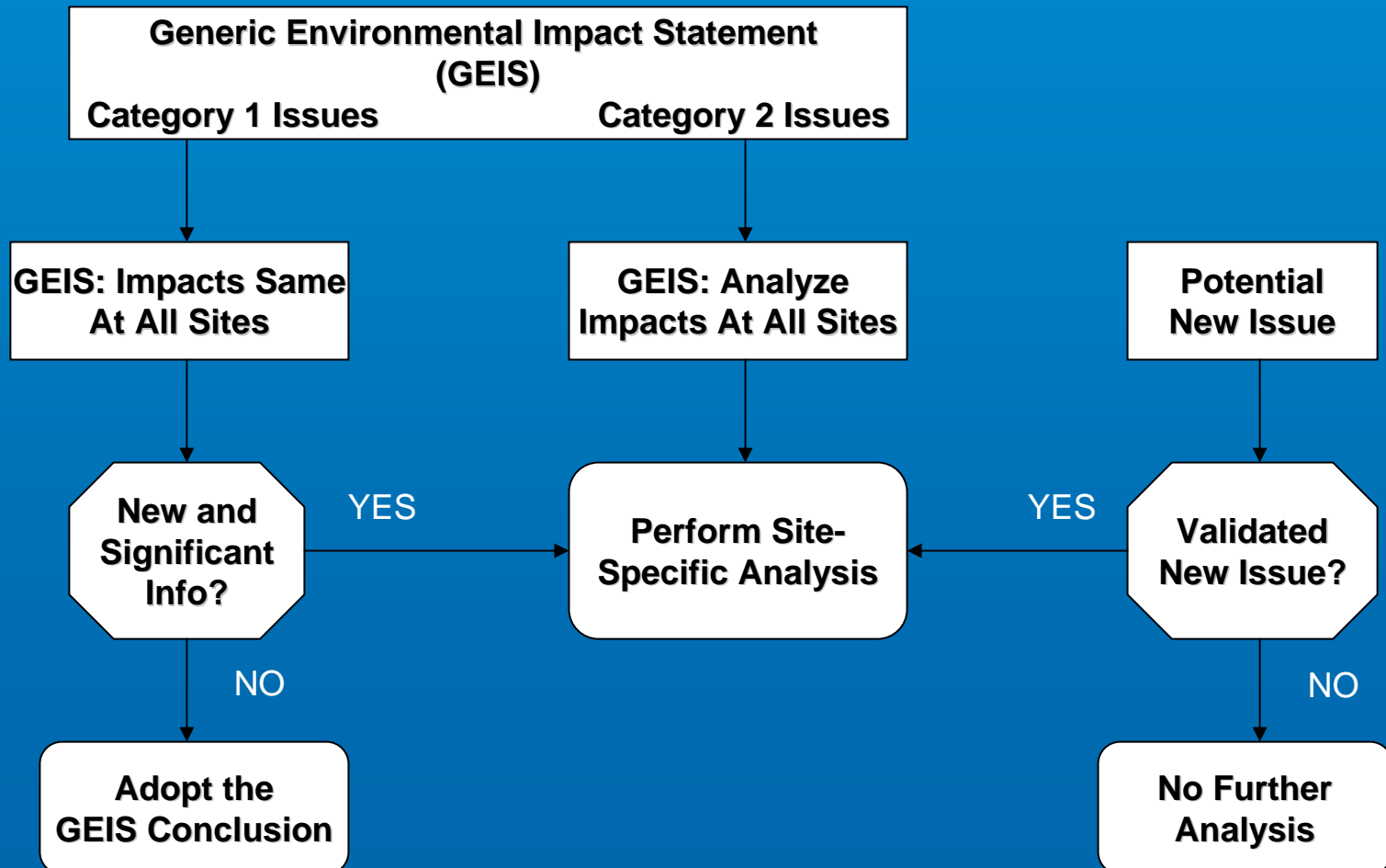
# Team Expertise

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# Analysis Approach





# How Impacts are Quantified

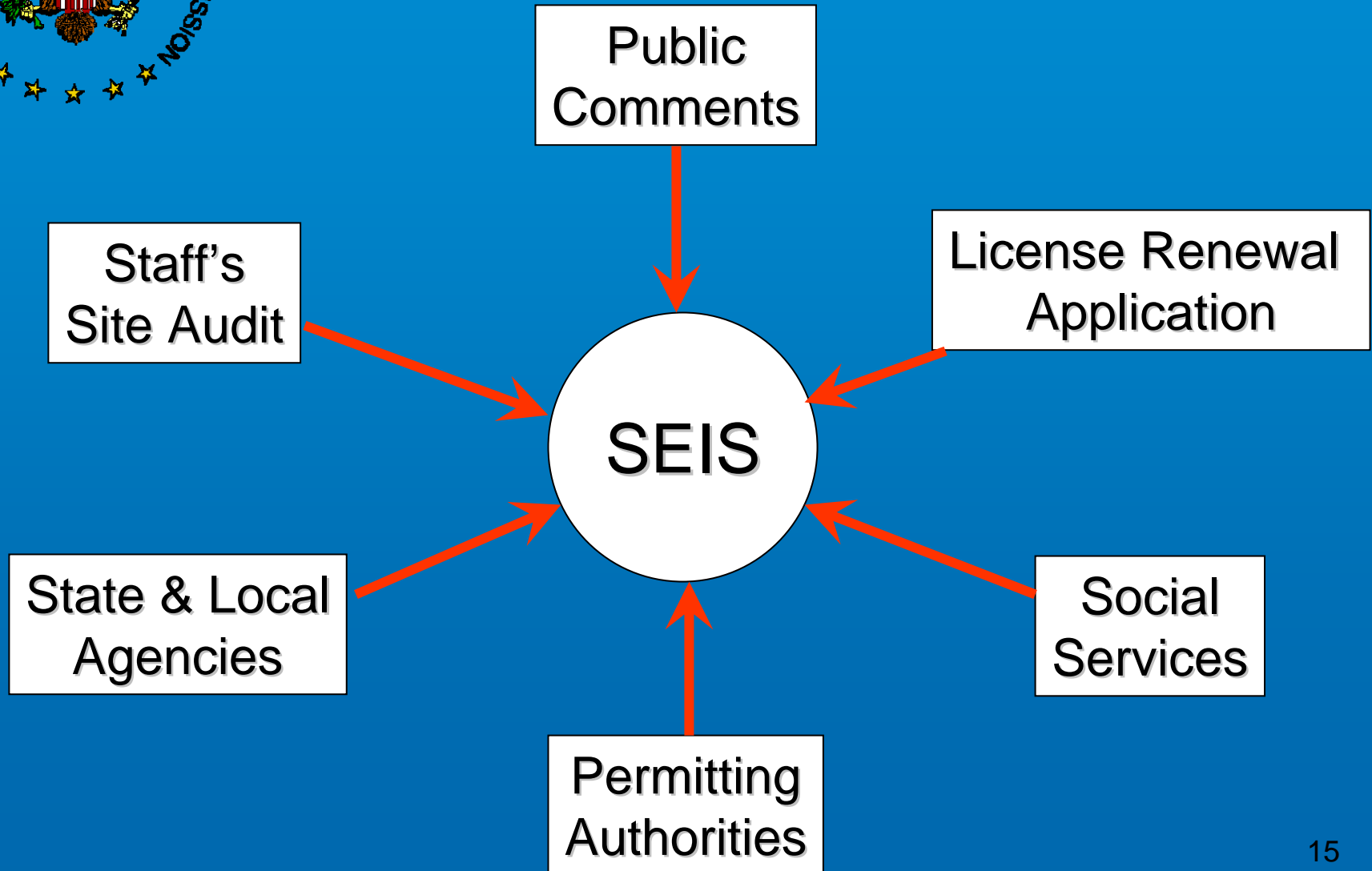
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- NRC-defined impact levels:
  - **SMALL**: *Effect is not detectable or too small to destabilize or noticeably alter any important attribute of the resource*
  - **MODERATE**: *Effect is sufficient to alter noticeably, but not destabilize important attributes of the resource*
  - **LARGE**: *Effect is clearly noticeable and sufficient to destabilize important attributes of the resource*
- Consistent with the Council on Environmental Quality regulations for NEPA analyses



# Information Gathering

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# Environmental Impacts of Continued Operation

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- Cooling system
- Radiological
- Threatened or endangered species
- Cumulative impacts
- Accidents





# Cooling System Impacts

- Category 2 issues
  - Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow)
  - Entrainment of fish and shellfish in early life stages
  - Impingement of fish and shellfish
  - Heat shock
  - Microbiological organisms (public health) (plants using lakes or canals, or cooling towers or cooling ponds that discharge to a small river)
- Preliminary findings
  - Impacts would be SMALL



# Radiological Impacts

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- Category 1 issues
  - Radiation exposures to the public
- Preliminary findings regarding Vermont Yankee
  - No new and significant information identified
  - GEIS concluded impacts would be SMALL



# Threatened or Endangered Species

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- One threatened or endangered species occurs in the vicinity: the bald eagle
- No impacts expected to bald eagle
- Impacts would be SMALL





# Cumulative Impacts of Operation

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- Impacts of renewal term operations combined with other past, present, and reasonably foreseeable future actions
  - Evaluated to end of 20-year renewal term
  - Geographic boundaries dependent on resource
- Cumulative impacts would be SMALL



# Other Environmental Impacts Evaluated

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- Uranium fuel cycle and solid waste management
- Decommissioning



# Alternatives

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- No-action
- Alternative energy sources
  - New generation (coal, natural gas, nuclear)
  - Purchased electrical power
  - Other alternatives (wind, solar, conservation)
  - Combination of alternatives
- Environmental effects of alternatives in at least some impact categories reach MODERATE or LARGE significance



# Preliminary Conclusions

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- GEIS conclusions on Category 1 issues adopted
- Impacts resulting from Category 2 issues are of SMALL significance
- Environmental effects of alternatives may reach MODERATE or LARGE significance



# Postulated Accidents

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- Design-basis accidents
- Severe accidents
  - Severe accident mitigation alternatives (SAMAs)





# Preliminary Results of SAMA Evaluation

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- 302 potential SAMAs considered
- Number of SAMAs reduced to 66 based on screening process
- Detailed cost-benefit analysis shows that 6 SAMAs could be cost beneficial
- None of these are related to managing the effects of aging. Therefore, none are required to be implemented as part of license renewal



# Environmental Review Milestones

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- Draft SEIS issued – **December 13, 2006**
- Comment period ends – **March 7, 2007**
- Issuance of Final SEIS – **August 2007**



# Additional Information

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- NRC contact: Mr. Richard Emch (800) 368-5642, Ext. 1590
- Documents located at the
  - Vernon Free Library, 567 Governor Hunt Road, Vernon, VT
  - Brooks Memorial Library, 224 Main Street, Brattleboro, VT
  - Hinsdale Public Library, 122 Brattleboro Road, Hinsdale, NH
  - Dickinson Memorial Library, 115 Main Street, Northfield, MA
- Draft SEIS can also be viewed at: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1437/supplement30/index.html>



# Submitting Comments

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- By mail: Chief, Rules and Directives Branch  
Division of Administrative Services  
Mailstop T-6D59  
U.S. Nuclear Regulatory Commission  
Washington DC 20555
- By e-mail: [VermontYankeeEIS@nrc.gov](mailto:VermontYankeeEIS@nrc.gov)
- In person: 11545 Rockville Pike  
Rockville, Maryland

